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BOSTON UNIVERSITY SCHOOL OF MANAGEMENT

Final Environmental Impact Report

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Submitted To:
Executive Office
of Environmental Affairs

Proponent:
Boston University

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March 31, 1994

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1.0 PROJECT SUMMARY

1.0 PROJECT SUMMARY

1.1 PROJECT NAME AND NUMBER

EOEA # 9202
Boston University - School of Management
595 Commonwealth Avenue
Boston, Massachusetts 02215

1.2 SUMMARY PROJECT DESCRIPTION

Introduction

The new School of Management project program remains the same as that presented in the Draft Environmental Impact Report (DEIR), although refinement of design continues. This Final Environmental Impact Report contains clarifications, additional analyses of potential impacts, and mitigation measures as set forth in the Certificate on the Draft Environmental Impact Report.

Project Description

Boston University (the University) proposes to develop the site which presently contains existing surface parking lots at 575-595 Commonwealth Avenue into the new School of Management project (the Project). The purpose of the Project is to upgrade and consolidate School of Management facilities, consolidate some executive administration activities, and provide adequate parking for the proposed uses. The Project also includes pedestrian safety improvements, enhancements to the urban fabric in the area, and contributions to the economic vitality of the Kenmore Square area. The location of the Project site offers the School of Management opportunities to create a visual gateway to the University campus from the east, develop an underutilized parcel of land along Commonwealth Avenue, and contain new development within the campus boundary defined in the 1980 Cooperation Agreement with the City.

It is imperative for the University to upgrade and update the existing facilities of the School of Management in order to maintain its excellent standing in the educational community. The School of Management attracts students from all over the world through its undergraduate, graduate and continuing education programs. The academic space in the new School of Management project will serve to consolidate, upgrade, and update the existing facilities by including classrooms, computer rooms, a lecture hall, a library, academic offices, and supporting canteen and lounges. Similarly, executive administrative space needs to be modernized and consolidated into a single location. The executive administrative space is currently spread throughout the campus.

Boston University originally proposed in the Environmental Notification Form to build a new School of Management project consisting of a ten story building containing approximately 366,000 square feet at an estimated cost of $80 million. In response to concerns about visual impacts expressed by officials and individuals through the Massachusetts Environmental Protection Act (MEPA) and City of Boston Article 31 processes, the University has developed and agreed to a lesser scale nine story building alternative. The alternative has reduced the gross square footage by 11%, reduced the building height by 18 feet, and reduced the Floor Area Ratio (FAR) to 6.5. The comparison between the two building alternatives is included throughout this Environmental Impact Report.

The lesser scale Project, now considered the preferred alternative, is estimated to cost approximately $75 million. The preferred Project alternative includes a nine story building located at 595 Commonwealth Avenue containing approximately 321,700 square feet of gross floor area, (as defined by Boston Zoning Code) approximately 166 feet in height. This space will be devoted to University academic uses, including the School of Management, and some executive administration functions. There will also be approximately 270 parking spaces in three levels below grade. Pedestrian safety and streetscape amenities, included in the original design, are retained in the preferred alternative (see Figure 1-1).

For comparison purposes, a B-4 zoning alternative and no-build alternative are also discussed in this document.

Progress Since the DEIR

There has been substantial progress involving the new School of Management Project since the filing of the DEIR (December 15, 1993). A draft Memorandum of Agreement (MOA) has been developed in conjunction with MHC and submitted for approval. This MOA provides commitments to renovate buildings in the historic district, improvements to the storm drainage system and the private alley which serves adjoining historic buildings, a detailed Building and Groundwater Level Protection Plan, new landscaping in the historic district, and provision of interpretive plaques on historic buildings. Designs for shelter and safety improvements at the MBTA Blandford Street stop have been developed in conjunction with MBTA officials. An Archaeological Monitoring Program has been developed and submitted to the Massachusetts Historic Commission (MHC) for approval.

There has also been progress with City of Boston agencies. The BRA has issued a Final Adequacy Determination on the Project Impact Report and final design drawings are currently under review. A draft Transportation Access Plan Agreement and Construction Management Plan have been prepared and submitted to the City for approval.

Summary of Benefits

The Project will provide the following benefits to the area and to the University:

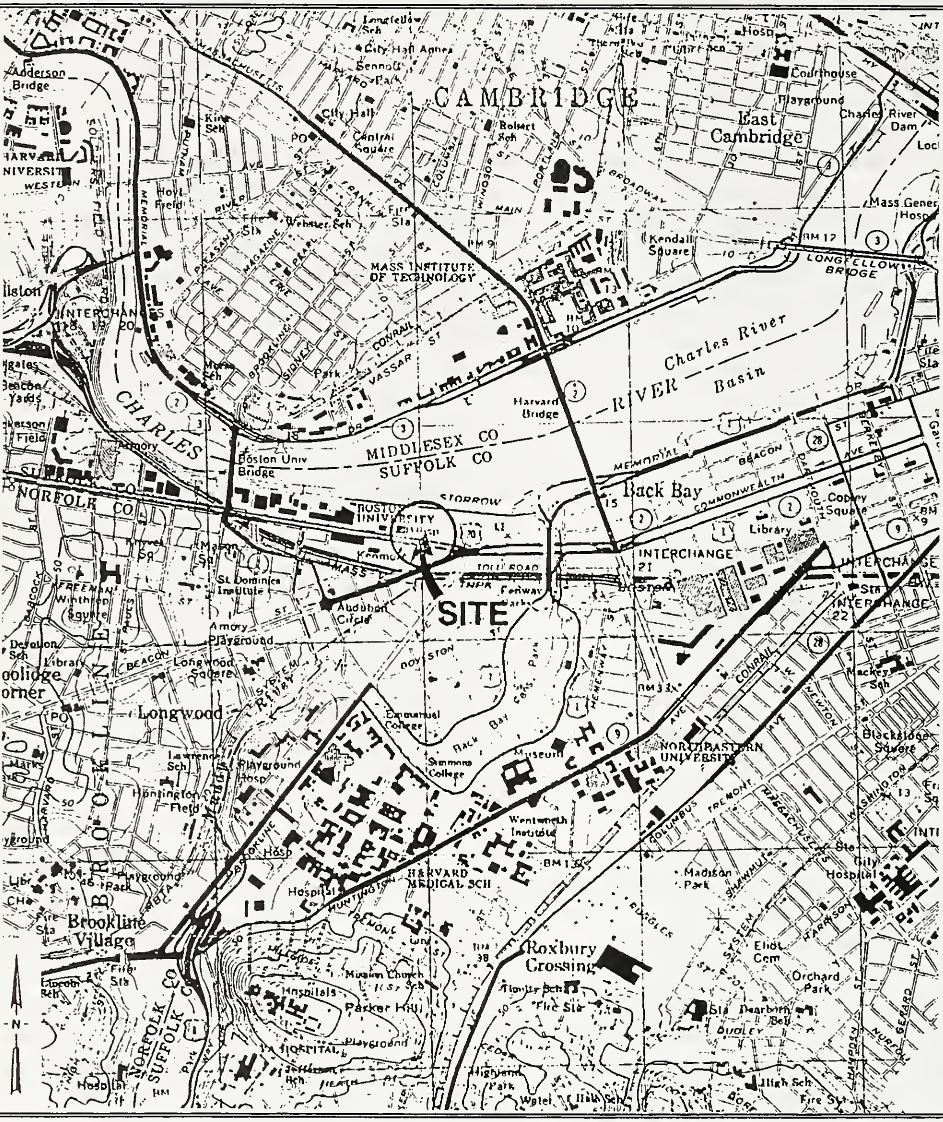
- Improve the quality of the School of Management facilities and the quality of education to students.
- Serve to consolidate academic and executive administrative activities on campus.
- Improve the continuity of buildings and activities along Commonwealth Avenue by filling the "gap" created by the current surface parking use.
- Provide pedestrian improvements and new landscaping along the block.
- Contribute to the vitality of the area with complementary activities and provide a transition from commercial to academic uses along Commonwealth Avenue.
- Improve pedestrian and traffic safety along Commonwealth Avenue by constructing pedestrian neck-downs and reducing the number of driveway curb cuts.
- Create new construction jobs in the City of Boston.
- Provide in- and out-bound shelters and other safety improvements to the MBTA Blandford Street stop.
- Enhance the historic district with:
  - renovations of historic buildings over a three year period;
  - new landscaping to screen the views to the Project;
  - interpretive plaques on historic buildings;
  - improvements to the storm drainage system and the private alley which serves the adjoining historic buildings.

Construction of the Project is expected to begin in late spring of 1994 and to be completed in the fall of 1996. The Project concept is illustrated in Figure 1-2.

Building Design

The new School of Management project is to be located at the corner of Commonwealth Avenue and Sherborn Street. The Project proposes sidewalk safety improvements, green space, landscaping, and street furniture along both streets. The building facade is comprised of brick and fabricated limestone-colored pre-cast concrete and large clear glass fenestration in a style which is sympathetic to historic buildings in the area and is consistent with styles of recent buildings developed on campus. The building design includes two entrances, one on Sherborn Street and one on Commonwealth Avenue.

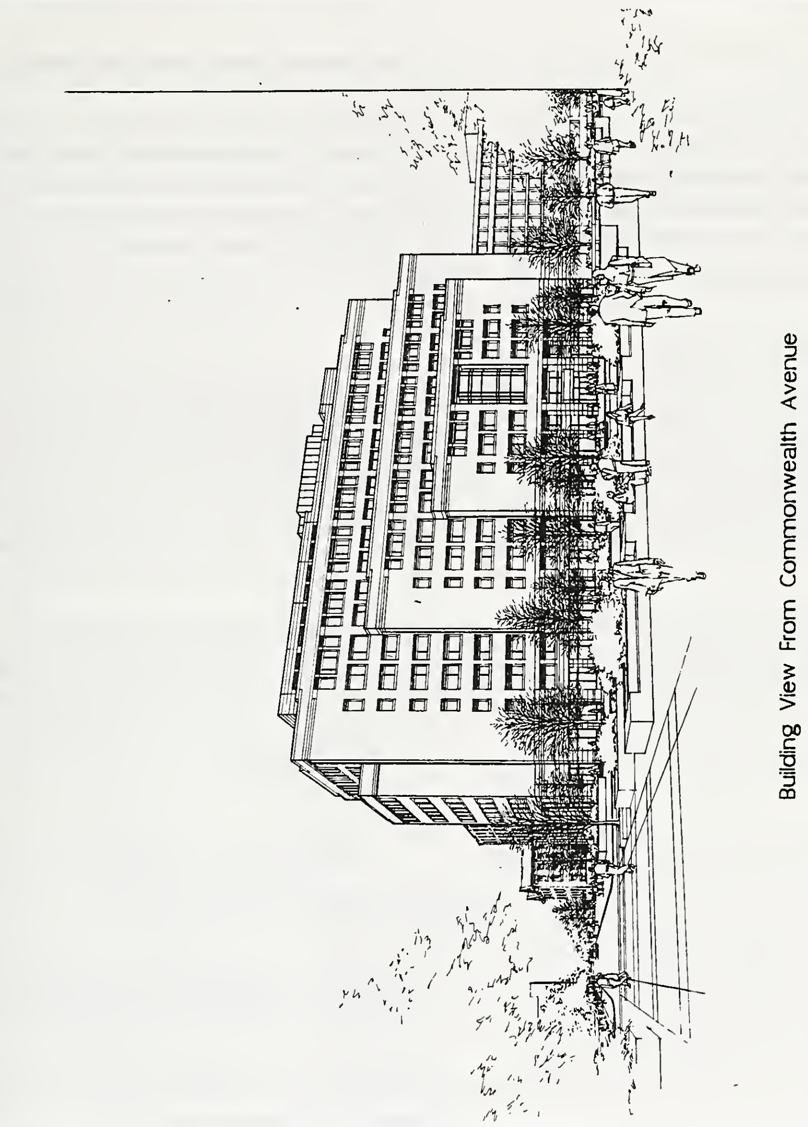
The first six floors of the Project will consolidate the new School of Management under one roof and include a library, lecture hall, case-study rooms, computer rooms, and classrooms. The Project will also contain offices for School of Management faculty and support administration.



Locus Plan

Prepared By:
Haley & Aldrich, Inc.

Figure 1-1



Building Perspective - Preferred Alternative (Nine Story)

Prepared By:
Cannon

Figure 1-2

The design includes a six floor atrium to encourage informal gatherings and interactions within the school.

The nine story alternative will consolidate some of the University's executive administrative space, currently spread throughout campus, on the upper three floors. The Project also will be serviced by three levels of below-grade parking with access from Commonwealth Avenue and egress at Sherborn Street. The Project is more fully described in Chapter 2.0, Project Description.

1.2.1 BACKGROUND

History of Boston University

In 1869, Jacob Sleeper, Isaac Rich, and Lee Claflin, businessmen and philanthropists, chartered "Boston University". The College of Liberal Arts initially took residence on Beacon Hill across from the State House. As the University grew, the component colleges were sited in various locations throughout Boston. By the turn of the century, the University Law School, Graduate School of Theology, School of Medicine, and College of Music were spread throughout the City of Boston.

In 1920, during the term of President Lemuel Herbert Murlin, Boston University bought land on the western end of Bay State Road to consolidate all the colleges into the "Charles River Campus". Bay State Road was lined with town houses, homes, hotels, and small offices largely vacated by residents moving to the suburbs. In the 1940's, the University acquired property on the eastern portion of Bay State Road including the area around the Project site. The University purchased these properties for University offices, residences and dormitories.

In the 1960's, the Charles River Campus was expanded. University facilities--classrooms, art studios, and other academic spaces, were developed in vacant auto showrooms, warehouses, and garages that lined Commonwealth Avenue from Kenmore Square to Brighton Avenue. In addition to the re-use of existing buildings, the University undertook considerable new construction to meet the demands of a growing enrollment throughout the 1960's and 1970's. During this time, the Law School and Law Library, Student Union, and Mugar Library were constructed. Over 3,500 dormitory beds were created in Warren Towers, Sleeper, Claflin and Rich Halls, and the Boston University dormitory. The University also sought to beautify its surroundings by creating the George Hart Way and Warren Alpert Mall along Bay State Road in the 1970s.

During the 1980s, the Metcalf Center for Science and Engineering (Metcalf Center) was built to enhance academic excellence and 635 Commonwealth Avenue, across the street from the Project site, was renovated for the Sargent College of Allied Health Professions. Today, the University offers a wide variety of programs and degrees to over 27,000 full- and part-time students. The University currently has over 17,000 employees.

History of the School of Management

In 1913, the College of Business Administration was established as an evening school. Fifty-one students were in the first graduating class in 1917. The college was located at 525 Boylston Street until it outgrew that location. In 1939, the Charles Hayden Memorial building was built at 685 Commonwealth Avenue to house the Boston University College of Business Administration. This was the first new building developed by the University on the Charles River Campus. By this time, the school had grown to 1,300 students and fifty full-time faculty members. The building provided ample space for classrooms, faculty offices and administration.

In the following decades, enrollment increased, curriculum expanded, and faculty size grew. In 1974, the College of Business changed its name to the Boston University School of Management to reflect the comprehensive, broad-based education and innovative, upper level business programs. Current graduate programs include a Doctorate of Business Administration and Masters of Business Administration in Public Management, Accounting, and Health Care. Reflecting a commitment to national and international business, the School has established research centers in human resources policy, Asian management, entrepreneurial management, public affairs, manufacturing, information systems, accounting, and direct marketing.

The University now offers joint degree programs with the College of Engineering, College of Liberal Arts/Graduate School, School of Law, College of Communication, and School of Medicine. This allows opportunities for degrees in:

- Health Care Management and Law
- Medical Science and Management
- Engineering and Management
- Economics and Management
- Management and Law
- Broadcast Administration and Management

The following special programs are offered by the School of Management in addition to the regular graduate and undergraduate programs:

- The Boston Leadership Academy
- The Legislative Advanced Management Program
- The Human Resources Policy Institute
- Manufacturing Roundtable
- Manufacturing Executive Forum
- The Entrepreneurial Management Institute
- The Boston Executive Education Program
- The Executive M.B.A. Program

- The Sanyo M.B.A Program - Tokyo
- The Executive Development Roundtable

Currently, the School's enrollment is nearly 3,500 graduate and undergraduate students. There are over 112 full-time faculty and 81 part-time faculty, who are spread out in six locations across campus. Current facilities are over 50 years old and cannot accommodate high technology equipment nor other state-of-the-art facilities for new programs. The need for new and consolidated space is created by programs which have been developed in recent years and by the changes in teaching techniques and facilities. In addition to the need for better classrooms, there is a demand for case-study rooms (requiring higher ceilings and more space per room than is available in existing University facilities), break-out rooms, computer rooms, a periodicals library, and informal lounge and meeting areas. The School of Management program's needs and objectives are more fully discussed in Chapter 2.0, Project Description.

Project Background

In 1986, the University initiated a comprehensive master planning process for the Charles River Campus which resulted in The Boston University Charles River Campus Master Plan 1986 - 1996 (Master Plan). This process included city officials, numerous community groups, and University officials. Due to the inclusive effort, the Master Plan enjoys endorsement by a broad range of groups and individuals including the University. The Master Plan was submitted to the Boston Redevelopment Authority in 1987 and approved on March 26, 1987. The Master Plan which offers a structural framework for campus development of housing, academic space, recreational facilities, and parking, identifies goals and objectives for the ensuing ten year period. It provides a context, in addition to the zoning and environmental review processes, in which specific activities and development projects can be evaluated.

The Project site, the western portion of Site Q, is identified on the Master Plan as a potential site for development. It is located on the block between Deerfield and Sherborn Streets and on the northern side of Commonwealth Avenue. The Master Plan suggests that this portion of Site Q be developed for the purpose of consolidating academic and commercial uses including the School of Management. The Master Plan also calls for the provision of adequate parking to support uses on site. A detailed discussion of the Master Plan can be found in Chapter 3.0, Zoning and Master Plan Consistency.

1.3. PROJECT TEAM

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1.4 CURRENT OR FORMERLY OWNED DEVELOPMENTS IN BOSTON

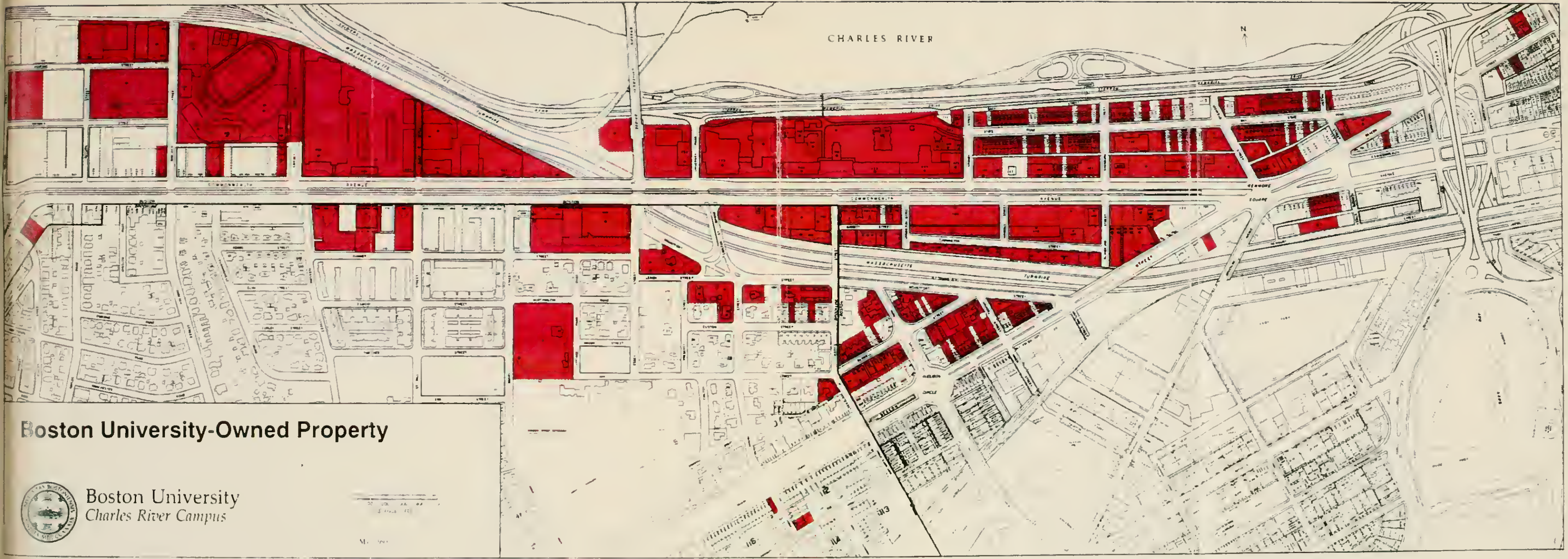
The University is comprised of two main campuses in the City of Boston: the Charles River Campus concentrated along Commonwealth Avenue from the Kenmore Square area to the eastern edges of Allston around Nickerson (formerly Braves) Field; and the Medical Campus concentrated in the South End between City Hospital and University Hospital. Master plans for each of the two campuses have been approved by the Boston Redevelopment Authority (BRA). Developments in accordance with the master plans are continually ongoing on both campuses. See the figure following page 1-10 for University ownership within the Charles River Campus.

1.5 AGENCY AND COMMUNITY REVIEW PROCESS

In 1980, Boston University entered into a Cooperation Agreement with the City of Boston for the Charles River Campus which set forth boundaries and general goals and procedures for orderly growth and development of the campus.

In the mid-1980s, a master plan process for the Charles River Campus was established. The Master Plan was prepared over an eighteen month period with considerable involvement by the Boston Redevelopment Authority and residents of the adjacent communities. To enhance the community's participation in the master planning process, the Boston University Task Force was established. This Task Force was comprised of members representing area civic associations, neighborhood associations, business interests, and other groups. A current list of Task Force members include:

Allston Board of Trade
Allston Civic Association
Allston-Brighton Area Planning Action Council
Allston-Brighton Community Development Corporation
Audubon Circle Neighborhood Association
Bay State Road Civic Association
Bay State Road Neighborhood Association
Boston University Student Union
Brighton Board of Trade
Brighton Improvement Association
Cottage Farm Neighborhood Association
Fenway Community Development Corporation
Jackson-Mann Community School Council
Kenmore Association
Kenmore Community & Economic Development
Kenmore Residents' Group



Boston University-Owned Property

Boston University
Charles River Campus

North Brookline Neighborhood Association
Society for the Preservation for Audubon Circle

This group met on a regular basis with representatives of the University and the consultant team involved in the master planning process to discuss the plan and to help shape it to respond to their concerns. The published Master Plan bears the endorsement of this group. The Master Plan was completed and approved by the BRA Board in March 1987.

The Master Plan identifies the Project site (the westerly portion of Site Q) for acquisition and development. Through the master plan process, the BRA, Task Force, and University formed a consensus on general uses including support for the Project location on the westerly portion of Site Q as proposed. The property acquisitions for the new School of Management site were completed in 1987. A more detailed discussion of the Master Plan is found in Chapter 3.0, Zoning and Master Plan Consistency.

University officials have been reviewing the proposed Project with BRA officials since 1991 and Boston University voluntarily agreed to participate in the Article 31 process for the new School of Management project. Accordingly, a Project Notification Form (PNF) was submitted to the BRA in August, 1992, a Scoping Determination on the PNF was issued October 27, 1992, a Draft Project Impact Report was submitted February 19, 1993, and a Preliminary Adequacy Determination was issued on the Draft Project Impact Report on June 29, 1993. The Final Project Impact Report was submitted to the BRA on October 15, 1993. A Final Adequacy Determination was issued on January 27, 1994.

Presentations were made to the Boston Civic Design Commission (BCDC) and the BRA staff throughout the Project's design evolution. A meeting of the Task Force to review the ten story alternative of the new School of Management project was held November 30, 1992. At this meeting, the Task Force voted to support the Project.

A presentation of the Project was made to members of the Kenmore Association in December 1992 and two meetings with representatives of the Kenmore Tower Association were held early in 1993. In response to discussions and comments through these review processes, the nine story alternative was developed and presented to the Task Force on June 2, 1993. The Task Force found the Project to be consistent with the Master Plan and voted to support the Project.

On June 10, 1993, a public hearing was held by the BRA Board concerning the Development Plan (No. 43) and Development Impact Project (DIP) Plan for the Planned Development Area (PDA) Plan, encompassing the nine story project alternative. Attendance included City Councilors, representatives of community organizations, and residents from the Project area. The chairperson of the Boston University Task Force, representatives of Kenmore business associations, Bay State Road Neighborhood Association and building trades presented letters, petitions and testimony supporting the Project as it improves an existing eyesore, promotes better safety on Commonwealth Avenue, stimulates economic growth, and conforms to the Master Plan. City Councilors O'Neil, Kelly, Hennigan-Casey, Byrne, and Nucci expressed support of the Project particularly in regard to the reduced height and scale, inclusive review process with neighbors, job creation, and economic benefits to the City of Boston through linkage payments and other revenues generated. Concerns were expressed by City Councilor Scondras, three Bay State Road residents and condominium residents across Commonwealth Avenue regarding building height and protection of groundwater levels during and after construction. In response to these issues, the Project was taken under advisement and the Director of the BRA met with representative residents of the area to discuss their concerns prior to the final Board vote.

On June 24, 1993, the BRA Board reconvened and voted unanimously to: approve the Development Plan, authorize the Director to enter into a DIP Agreement and Cooperation Agreement with the University, authorize the Director to petition the Zoning Commission for the PDA designation, authorize the Director to recommend approval of the petition to the Board of Appeal for zoning relief, and authorize the Director to issue an Adequacy Determination upon completion of the Article 31 review process and approved the Schematic Design submission. The Boston Zoning Commission heard and approved the PDA by unanimous vote on August 10, 1993. The Board of Appeal met on November, 23, 1993 and unanimously voted to approve the required zoning relief for the Project.

In addition to the BRA review process, meetings have been held with the Massachusetts Executive Office of Environmental Affairs MEPA Unit, Massachusetts Historical Commission, Massachusetts Bay Transportation Authority, and Boston Landmarks Commission. Other local and state permitting agencies have also been contacted regarding the Project. Boston University officials and design and engineering consultants have been in contact with the Boston Transportation Department, Boston Department of Public Works, Public Improvement Commission, Boston Water and Sewer Commission, Inspectional Services Department, and Massachusetts Department of Environmental Protection. Discussions have continued as the building design has been developed and will continue through construction.

An Environmental Notification Form (ENF) was filed with the Massachusetts Executive Office of Environmental Affairs MEPA Unit on October 30, 1992. A notice was published in the "Environmental Monitor" on November 9, 1992, and a public consultation session was held November 19, 1992. A Certificate on the ENF was issued on December 9, 1992. A Notice of Project Change (NPC) was filed in accordance with MEPA regulations on January 13, 1993, and published in the "Environmental Monitor" on January 25, 1993. A copy of the NPC was distributed to the ENF distribution list and to all parties who submitted written comments on the ENF subject matter of the NPC. The Certificate on the NPC was issued on March 19, 1993. The ENF, ENF Certificate, the NPC, and the NPC Certificate may be found in Appendix B. Since the

NPC was distributed, the new School of Management project has been reduced to nine stories and refined.

On July 15, 1993, a presentation of the preferred alternative was made to a number of reviewing agencies including the BRA, Massachusetts Historical Commission, MEPA Unit, Massachusetts Department of Environmental Protection, Massachusetts Bay Transportation Authority, Metropolitan District Commission, and Executive Office of Economic Affairs. A separate presentation was also made to the Massachusetts Historical Commission on July 15, 1993. Smaller presentations of the reduced nine story project were also made to the Task Force and affected neighbors. A meeting was held on August 31, 1993 with the MBTA to review circulation concerns, the shelter, and other MBTA stop improvements.

The Draft Environmental Impact Report (DEIR) was submitted on December 15, 1993 and a Certificate on the DEIR was issued on January 28, 1994 (included in Section 1.9). Additional meetings were held with neighbors, advocacy groups, and officials prior to the DEIR filing. A Project update was presented to the Boston University Task Force on December 9, 1993. There was also a meeting on December 9, 1993 with the Massachusetts Historic Commission (MHC) and with MEPA on December 10, 1993. During the DEIR comment period, Boston University met with a number of concerned Bay State Road residents on January 13, 1994, and with the Boston Preservation Alliance, National Trust for Historic Preservation and the Society for Preservation of New England Antiquities on January 20, 1994. On March 10, 1994, subsequent to the issuance of the Certificate on the DEIR, a consultation meeting was held with the MHC which also included the Boston Preservation Alliance, National Trust for Historic Preservation, and Society for the Preservation of New England Antiquities. This meeting discussed the terms of a proposed Memorandum of Agreement (MOA) between MHC and the University. The terms of the MOA were outlined and a draft MOA was submitted to MHC for review. A copy of the Draft MOA is included in Appendix B.

1.6 COMMUNITY SERVICES AND BENEFITS

For over a century, Boston University has been an integral part of the City of Boston. Committed to an urban campus, it has consistently grown and contributed to the character and identity of the City of Boston and served as a prominent economic stabilizing force. The University's national and international prestige significantly strengthens the City of Boston's national and international reputation. For example, in 1989, both Presidents Bush and Mitterand spoke at Boston University's commencement. In addition to being a significant employer in the City of Boston, the University contributes directly to the economic well-being of the City of Boston and provides direct services to local community residents and businesses.

Economic and Employment Benefits

Benefits from Boston University which contribute to the Boston economy include employment, property taxes, federal grants, and acquisition of goods and services by the student, faculty and administrative population. In fiscal year 1992, the University and its affiliates and students expended over $710 million. Of this amount, $558.8 million was spent in direct expenditures within the Commonwealth of Massachusetts. In addition, an estimated $641.2 million in indirect expenditures was generated (based on economic factors from the U.S. Department of Commerce, Bureau of Economic Analysis), resulting in a total economic impact of $1.2 billion in 1992 alone.

In 1992, Boston University directly employed over 21,500 people and indirectly created approximately 11,500 jobs, providing a total employment impact of close to 33,000 jobs. It is estimated that students alone brought in an additional $129.7 million related to living expenses. The total direct and indirect economic impact from the University in 1992 is estimated to be $396.2 million in the City of Boston.

In the 1992 fiscal year, Boston University employed approximately 2,900 Boston residents who earned more than $58 million in salaries and wages. The University used more than 4,500 city vendors of goods and services with direct expenditures of more than $70 million. Student expenditures in the City of Boston totaled over $74 million.

The new School of Management project will create approximately 300 new construction jobs. It is estimated that the Project will also contribute over $1.3 million in linkage payments to the City of Boston to be used for job training and affordable housing in accordance with Articles 26A and 26B of the Boston Zoning Code.

Tax Status

Boston University makes direct payments to the City of Boston in the form of taxes, in-lieu-of-tax payments, fees and permits. In fiscal year 1992, the University paid the City of Boston over $2.8 million. This reflects $1.9 million in real estate taxes, $331,000 in-lieu-of-tax payments, and $577,000 in fees and permits.

Under the 1980 Cooperation Agreement with the City of Boston, notwithstanding its tax-exempt status, the University voluntarily pays real estate taxes on any taxable properties acquired after 1980. Since 1981, the University has paid over $16 million in property taxes alone. Accordingly, the University continues to pay property taxes on the Project site which were estimated to be $23,714 in FY 1993.

Municipal Services

As a major urban institution in the City of Boston, Boston University takes the responsibility of providing and augmenting major municipal services in and around its campus. It employs its own police and security forces 365 days a year, 24 hours per day to patrol the campus and surrounding neighborhoods. University police forces are also available for on-call back-up assistance to Boston Police, Brookline Police and State Police as necessary. They also assist the City of Boston in the issuance of parking tickets, which raised approximately $50,000 in 1992.

The Boston University Physical Plant provides a variety of daily maintenance activities around campus. These responsibilities include maintenance of sidewalks, streets, and MBTA tracks serving the campus. They also provide and maintain landscaping and perform rubbish and snow removal services. In 1992, these services were provided at a cost of over $600,000. Rubbish removal services are provided for private rental housing properties in addition to properties owned and occupied by the University.

Scholarship Programs

The University annually provides hundreds of scholarships to residents of the Greater Boston community. The Boston Scholarship Program awards 58 full, four year scholarships to Boston high school graduates every year. This program, which is 20 years old, is the largest program of its kind in the United States. In 1992, over 350 scholarships worth close to $5 million were awarded to Boston public high school graduates, Boston city employees, Boston public school teachers, Boston parochial school graduates, graduates of Bunker Hill and Roxbury Community Colleges, and families of fire fighters killed in the line of duty. Over the past ten years, almost $1 million in aid has been designated for City of Boston employees of which 63% has been directed to City of Boston employees attending the School of Management. The cumulative value of such scholarships since 1981 is over $33 million. In addition, the University provides scholarships to residents of Chelsea and Brookline.

Boston University cultivates a significant amount of federal research dollars, student loans, and donations from outside the state. In the 1991-1992 academic year, the University brought approximately $220 million to Boston in tuition and fees from outside the state. It also won $60 million in federal research funding and brought in $37.2 million in donations, $31.5 million of which were from outside the state. Student loan activity associated with Boston University totaled almost $35 million in the 1991-1992 academic year.

School of Management Community Programs

Boston University is committed to supporting the City of Boston with targeted educational programs. In 1987, the Boston Leadership Academy was founded as a jointly sponsored institute of the Boston University Schools of Management and Education. The Academy has trained over 150 teachers, administrators, and principals to assume leadership positions in the Boston Public School system. Over the last two years, the Academy has been actively involved in a "grass roots" organizing effort to involve all members of the Boston community in the transformation of the public school system. Through this focus, over 300 parents, teachers, and administrators have been trained to assume roles of leadership in their local schools. The Academy is also actively involved in recruiting, training, and supporting school-based facilitators to help local schools integrate parents into the decision-making process. Notable alumni of the Boston University School of Management include Samuel Gerson, Chairman and CEO of Filene's Basement Inc.; Michael Grossman, Chairman Emeritus of Grossman's Lumber Co.; and Ed Boudreau, Jr., Chairman and CEO of John Hancock.

Other Community Services

Boston University provides numerous educational, training, health, legal and cultural programs which are directly and indirectly funded by the University. Boston University also allows tuition reduction for City of Boston employees. The following is a list of program categories.

Services to Educational Institutions

Centers, Institutes, and Partnerships
Student Teacher Field Placements
Early Childhood and Middle School Programs
Secondary School Programs
Programs for Teachers and Administrators

Services to Other Non-Profit Institutions

Staff Training
Professional/Technical Assistance
Volunteer Staffing
Funding and In-Kind Donations

Services to Individuals and the Community at Large

Scholarship Assistance
Government and Community Affairs
Health Care Services
Dental Care Services
Athletics/Fitness
Adult Education Programs

Programs for Professionals
Programs for the Elderly
Programs for People with Disabilities
Mentoring and Counseling
Religious Education and Ministry
Legal Assistance
Charities/Community Action
Cultural and Intellectual Programs

Project Benefits

The new School of Management project is subject to Articles 26A and 26B of the Boston Zoning Code which established linkage obligations for developers to off-set impacts of large scale development. Article 26A requires a payment toward low and moderate housing through the direct creation of housing or contribution to the Neighborhood Housing Trust. Similarly, Article 26B requires a contribution to the Neighborhood Job Trust for training of low and moderate income people. For the Project, the nine story alternative will generate approximately $1,108,500 in housing linkage funds and approximately $221,700 in job linkage funds to the City of Boston. Furthermore, the Project will create approximately 300 construction jobs over a two and one-half year period.

In addition to the direct economic benefits, the new School of Management project will create other positive benefits to the neighborhood area. The Project will result in the revitalization of an unsightly parcel, adding to the vitality and safety along that block of Commonwealth Avenue and Sherborn Street bordering the site. The Project design includes landscaped areas, street furnishings, and curb-cut reductions which provide important pedestrian and traffic safety improvements. The new School of Management also expands and strengthens the market for Kenmore Square area businesses with the influx of students and employees close to the Square (see Chapter 2.0, Project Description).

As part of the development of the new School of Management, the University has agreed to cooperatively implement transit station improvements at the MBTA Blandford Street stop on the Green Line. This station is located adjacent to the site. The objective of the proposed improvements are to (1) provide a safer pedestrian environment for T passengers , (2) provide protection from inclement weather for passengers and (3) assure conformance with accessibility requirements. In response to these objectives, the University is preparing schematic design plans for station improvements including a "neckdown" at Sherborn Street to reduce the width of Commonwealth Avenue at the pedestrian crossing, jersey-type barriers to separate waiting passengers from moving traffic on Commonwealth Avenue, sheltered waiting areas and other passenger amenities.

The University has agreed to further enhance the neighboring historic district over the next three years by committing to renovate historic buildings, provide interpretive plaques on historic buildings, add new landscaping in the district, and upgrade the storm drainage system and the private alley serving the abutting historic buildings.

1.7 SUMMARY OF ENVIRONMENTAL ISSUES AND MITIGATING MEASURES

The Certificate of the Secretary of Environmental Affairs on the Notice of Project Change required that an Environmental Impact Report be prepared in accordance with the Massachusetts Environmental Policy Act (MEPA). The Certificate identified several areas of required analysis including historical resources and associated impacts, archaeological resources, oil and hazardous materials, and water and sewer capacity. Since issuance of the MEPA Certificate, a reduced nine story alternative has been developed and become the preferred Project alternative. The nine story alternative has received local regulatory approvals including the Board of Appeals, Zoning Commission, and the Boston Redevelopment Authority.

A DEIR was submitted on December 15, 1993 and a Certificate on the DEIR was issued on January 28, 1994. This Final Environmental Impact Report has been prepared in accordance with the Certificate.

The following is a summary of the environmental issues and mitigation measures addressed in this report.

PROJECT DESCRIPTION - Chapter 2.0

Chapter 2.0 addresses the preferred nine story project and other project alternatives, including the original ten story proposal, a conceptual proposal based on the existing B-4 zoning on the site, and the No-Build alternative. The nine and ten story alternatives meet the programmatic needs of the University, however, the ten story project has not received required local approvals and has greater impacts than the nine story project. The B-4 zoning alternative is presented for comparison purposes, but is not a feasible alternative because it does not accommodate the programmatic needs of the University and would significantly reduce the available parking supply. The B-4 and ten story alternatives are described in order to provide a baseline against which to measure the preferred alternative.

ZONING AND MASTER PLAN CONSISTENCY - Chapter 3.0

Chapter 3.0 addresses the consistency of the project with the existing Charles River Campus Master Plan, both in terms of use and size. Alternative locations identified within the Master Plan as having the potential for development are also analyzed for the suitability of use for the School of Management project. The conclusion of the analysis is that the proposed location is the most suitable and cost effective site to accommodate the programmatic needs of the University.

HISTORIC RESOURCES - Chapter 4.0

Impact

Visual

The new School of Management project is not located within an historic district but is located adjacent to the Bay State Road/Back Bay West Historic District. All of the Project Build alternatives will be visible from within the District. Portions of the Project will also be visible from the Charles River Basin Historic District. The new School of Management project utilizes brick, granite, and limestone colored pre-cast materials in a way which is compatible with historic buildings in the area and similar to the Myles Standish Hotel, one of the historic buildings within the District. Before and after views of the Project from within the historic district and from the Charles River illustrate the visual impact of the Project from these areas. The Project will be visible from, but not intrusive to, the historic districts. The view analysis illustrates the reduced visual impact of the preferred nine story alternative as compared to the ten story alternative.

Audible

The Project will not create any substantial increase in noise in the historic district through operations of mechanical systems or from traffic. The primary potential sources of noise associated with the Project will be from the building mechanical systems, garage exhaust system, and construction activities. Potential impacts on nearby sensitive receptors are of particular concern. Construction activities will temporarily alter the noise environment in the historic district. This condition will be short-lived and occur during regular daylight working hours. Noise levels for construction and operations will comply with the Regulations for the Control of Noise in the City of Boston. The difference in noise impacts between the nine and ten story project alternatives is minimal.

Atmospheric

The Project is not anticipated to generate significant air emissions. Potential sources of air pollution associated with the Project involve vehicular traffic, mechanical systems, and construction activities. Net new vehicle trips associated with the Project will be negligible, as the Project primarily relocates existing University uses in the vicinity and there is excellent access to public transportation and a Boston University campus shuttle bus. Other mechanical systems are vented above the mechanical penthouse, 150 feet above the ground. Emissions from construction will be comprised principally of fugitive dust and exhaust from construction equipment and excavation related activities. These impacts will be short-lived and not considered to be significant. The difference in air quality impacts between the project alternatives is negligible.

A qualitative assessment of the pedestrian level wind environment for the No-Build and Build condition was conducted for the ten story project alternative. The qualitative findings indicated that a quantitative analysis was warranted to better assess a few localized areas of accelerated wind speeds. A quantitative analysis was subsequently conducted in accordance with BRA guidelines for the nine story project alternative which included a specialized landscaping plan. Most locations will be well-suited for pedestrian use throughout the year. The quantitative analysis of the nine story alternative revealed that, overall, the Build condition creates moderately better wind conditions within the historic district than under the No-Build scenario. The area along Bay State Road and Sherborn Street in the historic district will experience unchanged or slightly improved wind conditions as a result of the Project.

A shadow study was conducted for both the nine and ten story alternatives to identify net new shadows cast by the Project on public streets, walkways, open space and the adjacent historic neighborhood. The analysis examines conditions during the vernal equinox, summer solstice, autumnal equinox, and the winter solstice at 9:00 AM, noon, and 3:00 PM. The Bay State Road area currently receives substantial shadows from existing buildings in the area. Public areas in the District will not experience a significant change from the existing shadow pattern during winter months. During the remaining nine months of the year, when outdoor activities are most frequent, there will be only a minor increase in shadow along Bay State Road.

No new shadows are cast by the Project upon front facades of buildings in Bay State Road during the spring, summer, and fall seasons. Some new shadows on building facades are created by the Project, but these are limited to the winter months and generally do not linger throughout the day. The new shadows which are created will be most evident along Sherborn Street at the intersection of the private alley, along the private alley immediately north of the Project, on portions of buildings along Bay State Road, and in the open space east of the Boston University dormitory. New shadows created by the Project will extend beyond this area during the winter months, when the sun is at its lowest position. Certain portions of Bay State Road and a small section of the southern bank of the Charles River will receive new shadow. The nine story alternative reduces the shadow impact on the historic district and Charles River Basin as compared to the ten story alternative.

Daylight obstruction analyses were conducted for the Project using the Boston Redevelopment Authority Daylight Analysis model (BRADA). These analyses were modified since the DEIR submission based on comments from the BRA (see Chapter 8.0, Response to Comments, Boston Redevelopment Authority). The original analyses and the modified analyses demonstrate the Project impacts on daylight in the District are consistent with conditions created by existing historic structures on Bay State Road. There is no significant difference in daylight impact between the nine and ten story alternatives.

Geotechnical Elements

No off-site impacts to existing structures or utilities in the historic district are anticipated as a result of the Project. The excavation for building construction will require a temporary support system and temporary dewatering within the limits of the excavation support system for both the nine and ten story alternatives, and to a lesser degree, the B-4 zoning alternative. The support system is selected to protect adjacent structures. Temporary dewatering during construction will be conducted inside the excavation support system. A temporary support system will be put in place during construction. This system will consist of a soil mix wall similar to one being used for the Central Artery/Tunnel Project in East Boston.

Mitigation

Visual

The preferred nine story project alternative was developed to mitigate and minimize potential visual impacts from the Project. The nine story alternative includes the elimination of one floor, reduced floor-to-ceiling heights, and reduced mechanical penthouse height. The result is a height reduction of 18 feet and reduced massing of the Project. In addition, balconies which employ curved brownstone elements were added to the north face of the building to be more in harmony with the character of the historic district and maintain a more harmonious rhythm in the views from Charles River.

In accordance with the Memorandum of Agreement, additional landscaping will be provided along Bay State Road and Sherborn street and screening of the Project from within the District.

Audible

All construction and operations will be in accordance with the City of Boston regulations pertaining to noise. No truck traffic or staging will be allowed on Bay State Road. No blasting or impact pile driving is anticipated during construction of the Project.

The garage entrance is located on Commonwealth Avenue on the opposite side of the building from the historic district so traffic associated with the Project will not affect the historic district. The building will also buffer the district from existing traffic noise emanating for Commonwealth Avenue. Most building mechanical systems are located above 150 feet from the ground. The garage exhaust louvers are located on the north side of the building in the rear alley. Garage exhaust louvers and mechanical equipment will be properly attenuated to assure no adverse impact on sensitive receptors in the historic district. The noise produced by these systems will meet, or be lower than, noise levels allowed by the City of Boston.

Atmospheric

The mechanical systems which exhaust from the penthouse will meet all applicable regulatory standards. Garage exhaust louvers are located in the alley, away from pedestrian activity and will be equipped with carbon monoxide sensing devices with automatic on\off switches to control levels in the garage and emissions into the atmosphere.

Construction activities are not anticipated to generate significant air emissions in the historic district. There is ample public parking in the area for construction workers and excellent public transportation to the Project site. The University will subsidize construction worker MBTA passes to further mitigate potential traffic and parking impacts during construction. New vehicle trips associated with the Project are insignificant and will have no noticeable impact on the historic district. The University will, however, promote programs which encourage use of public transportation, car and van pooling, and accommodate bicyclists.

Since the wind conditions within the historic district will improve or remain unchanged as a result of the Project, no further mitigation beyond the proposed landscape plantings is planned.

The reduced height and bulk of the nine story alternative mitigates impacts from the original ten story project alternative by reducing the extent of shadows cast along the southern bank of the Charles River, pedestrian areas, and on the historic buildings on Bay State Road.

The daylight impacts of the Project are in keeping with the daylight obstruction of existing historic buildings on Bay State Road and do not create an adverse effect on the historic district.

Geotechnical Elements

Although significant changes to the water table are not anticipated, a Building and Groundwater Level Protection Plan (BGLPP) has been prepared. A geotechnical instrumentation program will be conducted during construction to monitor construction activities and buildings adjacent to the site. The monitoring program will include the installation of five wells along Bay State Road two to three months prior to construction excavation. The program will monitor groundwater levels and soil/building movements. If monitoring indicates groundwater levels lower than the tops of existing piles of historic buildings for over 30 days, remedial measures will be taken such as sealing leaks in the wall systems and recharging the groundwater to levels above the piles of historic buildings. The BGLPP includes a detailed building and groundwater monitoring program, and a contingency plan with thresholds and performance standards. The plan also commits to providing monthly reports to MHC. The BGLPP plan is included in Appendix D.

The University recognizes the value of this historic district and is committed to preserving its integrity and value. The University has spent substantial money and dedicated resources to this area over the years. Furthermore, as the owner and occupier of 80% of the buildings on Bay State Road, the University has a vested interest in protecting these properties. Protection of these properties is a major factor in the foundation design and construction techniques considered. The mat foundation will be designed as a compensating foundation, and long-term, post-construction settlements will be negligible. The below-grade walls and mat of the structure will be waterproofed, and there will not be a permanent foundation under drain. Therefore, long-term groundwater levels will remain unchanged after building construction.

Memorandum of Agreement

The University has met with MHC and prepared a draft Memorandum of Agreement (MOA) which contains a number of commitments:

- To renovate one building per year in the historic district over a three year period.
- To provide six interpretive plaques on historic buildings.
- To improve and upgrade the storm drainage system in the alley thereby reducing flooding in the adjoining historic buildings.
- To re-pave and renovate the alley serving the historic district.
- To implement a Building and Groundwater Water Level Protection Plan.
- To conduct an approved Archaeological Monitoring Program during construction excavation.

The MOA is discussed in Chapter 4.0, Historic Resources, and is provided in Appendix B.

ARCHAEOLOGICAL RESOURCES - Chapter 5.0

Impact

There are no known recorded archaeological resources on the Project site. An archaeological reconnaissance survey of the site was conducted to determine the potential for the remains of a prehistoric fishweir. The reconnaissance revealed that, due to the land and topographic characteristics of the site, the site has potential for undocumented prehistoric remains in undisturbed marine deposits below the level of historic fill. As the building construction will include excavation for a parking garage, the potential exists for encountering archaeological resources in previously undisturbed marine deposits.

Mitigation

An Archaeological Monitoring Program will be implemented during construction to detect the presence of potential archaeological resources. The monitoring program will be conducted in conjunction with each level of excavated filled material. In the event artifacts are discovered, MHC will be notified. The archaeologist has a filed a permit application with the MHC, which includes specifications of the monitoring program. The specifications of the final monitoring program will be approved by the Massachusetts Historical Commission prior to commencement of construction.

OIL AND HAZARDOUS MATERIALS - Chapter 6.0

Impact

Investigations of the Project site indicate the presence of some soil and groundwater contamination largely from petroleum products formerly stored on the western portion of the site. The site investigation included seven test borings and seventeen test pits. The types and concentrations of compounds detected are consistent with previous site usage and do not constitute an imminent hazard to human health, safety, or to the environment. Construction techniques and the handling and disposal of materials do not significantly differ between the build alternatives. However, proper handling and disposal will be required during excavation.

Temporary dewatering will be conducted inside the excavation support system to enable foundation construction. The necessary permits for groundwater discharge will be obtained from Boston Water and Sewer Commission. Groundwater quality and discharge will be monitored and, if necessary, treated in accordance with such permits.

Mitigation

As a result of the Project, existing contaminated soils and groundwater on a portion of the site will be remediated. Special measures for the proper disposal of contaminated soil and groundwater will be implemented when such contaminants are encountered within the limits of excavation during construction. An Excavated Soil and Material Management Plan (ESMMP) has been prepared. This plan outlines procedures for on-site classification, handling, testing, and disposal of contaminated soils. A final ESMMP will be part of the construction documents and will be binding on construction contractors. The ESMMP is found in Appendix D. All excavation activities will be conducted in accordance with the revised provisions of the Massachusetts Contingency Plan (Ch. 21E). At the conclusion of construction, a site evaluation will be conducted by a Licensed Site Professional and a Response Action Outcome will be formulated.

To the extent possible, excavated materials will be used as backfill material to minimize off-site disposal of excess material. Asphalt from the existing parking lot will be crushed and recycled to further reduce the need for off-site disposal of excess materials.

When dewatering is necessary, water will be monitored for its quality, treated prior to discharge when warranted, and discharged into the storm drain in Commonwealth Avenue. Construction techniques will be employed to protect utilities from unnecessary disruption. Groundwater levels will be maintained outside the excavation limits during and after construction so as to protect the foundations of adjacent buildings from any adverse impacts.

PUBLIC UTILITIES - Chapter 7.0

Impact

The Project site is currently served by water, storm drainage, and sanitary sewerage systems under the ownership and/or control of the Boston Water and Sewer Commission (BWSC). Water supply and sewage treatment services are provided to BWSC by the Massachusetts Water Resources Authority (MWRA). The nine story alternative will generate a slightly reduced utility demand compared to the ten story alternative.

The peak domestic water demand created by the Project has been estimated to be 237 gallons per minute (GPM) for the nine story alternative, reduced from 258 GPM for the ten story alternative. Domestic water service will be supplied by the existing 16-inch low service water main located in Commonwealth Avenue.

Sanitary sewage generated by the ten story alternative was estimated to be approximately 49,575 gallons per day (GPD), which is reduced to 46,870 GPD with the nine story alternative. The sewage will be conveyed from the site via a 12-inch sanitary sewer connection to an existing 18-inch sewer line located in Commonwealth Avenue. This existing 18-inch line contributes to a sewer network which discharges into the Charles River Valley Sewer. The nine story alternative is estimated to result in a smaller increase in operational levels of the existing system to 34% of pipe capacity as compared to 36% of capacity with the ten story alternative.

It is anticipated that the post-development runoff will be slightly reduced as 15% of the site will be landscaped while currently, the entire site is paved. Oil/water separators will be employed in the drains from the parking garage as specified by MWRA and BWSC use regulations.

Mitigation

Through ongoing discussions and meetings with BWSC, it has been determined that there is sufficient utility capacity to service the Project. It is anticipated that BWSC would be able to meet the water, sewer, and stormwater drainage demands of either the nine or ten story project alternatives with the existing infrastructure. The nine story alternative reduces the impact on existing water and sewer systems. The building design incorporates water conservation techniques which minimize water use through water saving plumbing fixtures, efficient air conditioning systems, and a low flow irrigation system. As suggested by BWSC, a connection of the water meter to the phone line will be added to facilitate installation of an automatic meter reading device.

Although existing storm drains can accommodate the reduced flow from the project, the University has agreed to construct a new storm drain in the private alley to reduce flooding in the historic district. This new storm drain will be 24 inches in diameter, increasing to 30 inches and connecting to the Muddy River Conduit in Deerfield Street.

1.8 REGULATORY CONTROLS AND PERMITS

State Approvals

Private projects requiring state permits may be subject to state environmental review under the Massachusetts Environmental Policy Act (MEPA). Projects which exceed stipulated size or impact thresholds are required to file an ENF and, in some cases, an Environmental Impact Report (EIR). An ENF was filed on the new School of Management project on October 30, 1992, based on the potential for the use of Health and Educational Facilities Authority (HEFA) financing for the Project. A Certificate on the ENF was issued on December 9, 1992, requiring the preparation of an Environmental Impact Report. However, the University subsequently decided it did not intend to pursue HEFA financing in connection with the Project. An NPC was filed with the MEPA Unit on January 13, 1993, documenting this change. A Certificate on the NPC was issued on March 19, 1993, requiring the preparation of an EIR and providing new scope for analysis. A DEIR was filed on December 15, 1993 and a Certificate on the DEIR was issued on January 28, 1994.

Other state approvals for the Project are limited to sewer discharge and connection permits issued by the Massachusetts Water Resources Authority (MWRA) and review by the MHC. Since the MHC issued a finding of potential adverse effect, a draft Memorandum of Agreement has been developed (see Appendix B) based upon discussions at a March 10, 1994 consultation meeting. The MHC has issued a permit for archaeological monitoring during construction excavation. The permit application has been submitted to MHC for review. A sewer extension and/or connection permit application will be filed with MWRA toward the end of the MEPA process. The Blandford Street MBTA stop shelter and safety improvement design has been submitted to the MBTA for review. The University will continue to work with MBTA officials to finalize design and implementation.

Boston Redevelopment Authority

While the Boston Zoning Code does not require the preparation of a Project Notification Form (PNF) or a Project Impact Report (PIR) for the new School of Management because the Project site is not within the boundaries of the Article 31 review area, the proponent has recognized the importance of the City of Boston goals and interests embodied in Article 31 and the important urban location of the Project. Furthermore, the BRA has already approved a Master Plan for the Boston University Charles River Campus provided by the proponent. Therefore, the University has voluntarily submitted a Project Impact Report in connection with the Project. A Draft PIR was filed February 19, 1993, and a Preliminary Adequacy Determination issued June 29, 1993. The Final PIR was submitted on October 15, 1993. An Adequacy Determination on the Final PIR was issued on January 27, 1994. On June 24, 1993, the BRA Board voted to approve the Development Plan and Development Impact Project Plan for the Project ("PDA/DIP Plan"), to recommend approval of the PDA designation for the site to the Boston Zoning Commission (see "City of Boston Approvals" following), and to recommend approval of zoning relief to the Boston Board of Appeal. The Schematic Design of the Project was approved concurrently with the June 24, 1993 BRA Board vote. The BRA is currently conducting review of construction drawings.

City of Boston Approvals

The BRA petitioned to have the Boston Zoning Commission designate the site as a Planned Development Area (PDA) pursuant to Section 3-1A of the City of Boston Zoning Code. The Commission heard and approved the PDA on August 18, 1993. This designation permits the development of the site in accordance with the Development Plan approved by the BRA, subject to obtaining Board of Appeal approval for any required exceptions to the Boston Zoning Code. This procedure was also identified for this site in the approved "Charles River Campus Master Plan".

According to the maps accompanying the Boston Zoning Code, the Project site is located in a formerly classified B-4, or General Business zoning district. Colleges and universities granting degrees by authority of the Commonwealth of Massachusetts are conditional uses in B-4 zoning districts. The proponent has received approval from the Boston Board of Appeal on November 23, 1993 for exceptions to certain provisions of the Boston Zoning Code, including allowable uses, such as colleges and universities granting degrees, library uses, limited food sales, parking garages, and dimensional requirements such as floor area ratio, off-street loading, signage, side and rear yard, and parapet setback requirements.

Meetings with the Boston Department of Public Works, Boston Transportation Department (BTD) and Public Improvement Commission (PIC) have been held to discuss changes to the street and curb lines. A PIC hearing is anticipated for final approval. A draft Transportation

Access Plan Agreement has been prepared and a draft Construction Management Plan has been submitted and will be finalized prior to construction. Contact with all necessary reviewing and permitting agencies are ongoing. Meetings and discussions with the BWSC are ongoing. Water and sewer connection approvals and a construction dewatering permit will be needed. Connection permit applications will be submitted to MWRA simultaneously with BWSC applications.

Approvals and reviews by public agencies (completed and anticipated) are summarized in the following table.

STATE AGENCY	*APPROVAL*
Executive Office of Environmental Affairs	MEPA Certificate of Compliance
Department of Environmental Protection	Compliance with Massachusetts Contingency Plan
Massachusetts Water Resources Authority	Sewer Use Discharge Permit Sewer Extension and/or Connection Permit
Massachusetts Historical Commission	Memorandum of Agreement Archaeological Monitoring Permit

MUNICIPAL AGENCY	*APPROVAL*
Boston Redevelopment Authority	Approval of PDA/DIP Design Review Approval Zoning Recommendations
Boston Employment Commission	Construction Employment Plan
Boston Zoning Commission	Planned Development Area Designation
Boston Board of Appeal	Zoning Exceptions
Boston Committee on Licenses	Inflammable Materials Storage Lic. Garage Permit
Boston Fire Department	Fire Apparatus Access Approval Permit for Maintenance of Fire Protection Equipment
Boston Inspectional Services Department	Demolition Permit Building Permit Certificate of Occupancy
Boston Water and Sewer Commission	Sewer Connection Approval Water Connection Approval Construction Dewatering Discharge Permit
Boston Department of Public Works	Curb Cut Permit Street Opening Permit Street Occupancy Permit Approval for sign, awning, hood, canopy or marquee
Boston Public Improvement Commission	Approval of Modifications and Repairs to Curb and Public Easements
Boston Civic Design Commission	Design Review
Boston Transportation Dept.	Transportation Access Plan Agreement Construction Management Plan

1.9 CERTIFICATE ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, 02202

WILLIAM F. WELD
GOVERNOR
ARGEO PAUL CELLUCCI
LIEUTENANT GOVERNOR
TRUDY COXE
SECRETARY

Tel: (617) 727-9800
Fax: (617) 727-2754

January 28, 1994

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	:	Boston University School of Management (and Executive Offices)
PROJECT LOCATION	:	Boston
EOEA NUMBER	:	9202
PROJECT PROPONENT	:	Boston University
DATE NOTICED IN MONITOR	:	December 22, 1993

The Secretary of Environmental Affairs herein issues a statement that the Draft Environmental Impact Report adequately and properly complies with the Massachusetts Environmental Policy Act (M. G. L., c. 30, s. 61-62H) and with its implementing regulations (301 CMR 11.00).

Project Overview

Boston University (BU) proposes to construct a School of Management and Executive Administrative Center at 595 Commonwealth Avenue in Boston. The proposal filed with the Environmental Notification Form (ENF) called for the construction of a building of 366,000 square feet (s.f.) with 10 stories at a finished height of 183 feet. The building has been reduced one story since the ENF was filed, resulting in a reduction of 44,300 s.f. of building area at a finished height of 166 feet. The number of stories is not indicative of the height of the building in this case, because the space will contain auditoriums and other facilities necessitating higher than average floor to ceiling distances. The first six floors of the project will house the School of Management. The upper floors will consolidate the executive administrative space. The project will also involve three stories of subsurface excavation to provide 270 parking spaces.

The project site is located near the Kenmore Square area at the northeast corner of Sherborn Street and Commonwealth Avenue. Currently the site, a 46,950 s.f. rectangle, is used by BU as a surface parking lot for 181 cars. The site is bounded by Howard Johnson's Motor Lodge to the east, and by a BU residence hall to the north. The site is adjacent to the Bay State Road - Back Bay West Historic District.

In February of 1987, BU published a Master Plan for the University. Several months later the Master Plan was approved by the Boston Redevelopment Authority (BRA). The Master Plan proposed using a portion of "Parcel Q" for the development of a new School of Management. Parcel Q runs from Sherborn Street to Deerfield Street along Commonwealth Avenue. It also includes the block of Deerfield Street from Kenmore Square to Bay State Road. Parcel Q is an "L" shape.

The Master Plan estimated that the School of Management would be 120,000 s.f. The School of Management is one of two components of the proposed project and, at 227,000 s.f., is slightly less than double the size contemplated by the Master Plan.

Review Process

The ENF Certificate dated December 9, 1992 set forth a coordinated review process between MEPA and the BRA in accordance with Article 31 of the Boston Zoning Code and the MEPA Regulations at 301 CMR 11.13 "Special Provision for Coordinated Review of Projects Subject to Both MEPA and BRA Review." This process was supported by the BRA in its comment on the ENF dated November 20, 1992 and it comments on the Notice of Project Change dated March 2, 1993. The Certificate on the ENF called for one document to be prepared and circulated. It was to be an Environmental Impact Report/Project Impact Report (EIR/PIR). The proponent, however, bifurcated the review process by filing a Project Impact Report and not a joint document. The PIR document was reviewed by the Secretary of Environmental Affairs in conjunction with the Notice of Project Change.

The Notice of Project Change Certificate dated March 19, 1993 modified the earlier scope and outlined a way to reestablish a coordinated process. This process was expected to be as follows: if the BRA found the DPIR inadequate, then a new Supplemental PIR/DEIR was to be submitted by the proponent. If the BRA found the DPIR adequate, a DEIR was to be submitted by the proponent and circulated to the BRA and others for comment. A Final PIR/EIR was to be submitted by the proponent in either case. I understand that this course was not followed, and that the BRA has already issued a determination on the project.

When the BRA reviews a project that is subject to MEPA and an EIR is required, the general provisions of the MEPA regulations at 301 CMR 11.01(2) apply. Specifically, agencies (defined in 301 CMR 11.02) can act upon a project after the completion of the Secretary's review of a final EIR and the expiration of a legal challenge period. The relationship of this EIR review to BRA actions is not clear from the discussion in the DEIR (p. I-26). The DPIR stated that the proponent "voluntarily agreed to participate in the Article 31 Development Review Process." The DEIR indicates that the project is not within the boundaries of the Article 31 review area and that the BRA has previously approved a Master Plan for the Boston University Charles River Campus.

I request clarification how the BRA could act on this project prior to completion of MEPA review, and whether the BRA intends to reconsider its determination based on information provided in the FEIR. Since this is a concern that goes beyond this particular review, I ask that the proponent either addresses this issue in the FEIR, or prepares a separate response with the BRA and address it to the MEPA office or myself. I hope that this can clarify how the two review processes can or should be coordinated so as to benefit all parties involved.

Water and Sewer

The comments of the Boston Water and Sewer Commission (BWSC) indicate that most of its concerns have been addressed in the DEIR. Additional information on stormwater discharge is needed and should be supplied in the FEIR. Additionally, the Oil and Hazardous Materials section of the DEIR indicates that some treatment after dewatering may be required. Consultation with both BWSC and the MWRA is recommended regarding the requirements of this pretreatment. The Final EIR should report on the status of pretreatment planning.

Historic and Archaeological

Impacts to historic and archeological resources resulting from the development of the proposed project were measured in the DEIR by the following: shadow analysis, daylight analysis, urban design evaluation, and evaluation of wind impacts, archaeological impacts and groundwater impacts.

The comments of the MHC indicate that additional consultation is necessary to finalize additional mitigation measures necessary to protect the integrity of the adjacent historic district. A Memorandum of Agreement pursuant to MGL Chapter 254 should be prepared and included in the FEIR.

During the comment period, I received thoughtful comments from The Society for the Preservation of New England Antiquities (SPNEA), Preservation Boston, and the National Trust for Historic Preservation. The comments raise two general issues with respect to impacts on historic resources: the depth of the excavation and its possible impacts to groundwater (discussed below), and the height and massing of the building with respect to the context of the area.

The comments of SPNEA note that the size of the building is necessitated by the combination of the two functions (School of Management and BU Administrative Offices), essentially "piggybacking" them in the same structure, and that the DEIR presents no compelling case for such a combination, i.e. there is no connection between these functions internally and they are served by separate entrances. The DEIR states that the project is consistent with the Master Plan because the School of Management has 126,000 s.f. of assignable space but, beyond that, does not really clarify the relationship of this project to what was proposed in the Master Plan. I ask that the FEIR provide more of an explanation and, in doing so, address the comments and concerns of SPNEA, Preservation Boston and the National Trust.

The site is considered a possible location for a prehistoric fishweir or similar features. The proponent has committed to work with the BU Office of Public Archaeology to oversee the archaeological analysis and excavation of the site during construction. As noted in the comments of MHC, additional information will be required with respect to the proposed monitoring for the excavation period.

Geotechnical

The DEIR discusses geotechnical impacts in a cursory manner, providing statements about groundwater impacts and mitigation measures, but no data or analysis to support the conclusions. Groundwater impacts should be carefully analyzed for this project. Significant potential exists to damage the wood pile foundations of historic structures off site during construction and as a result of long term changes in groundwater conditions post construction.

In the late 19th Century, over 450 acres of marshland was filled in the area known today as "Back Bay." Fashionable brick townhouses were built in many of these filled areas, such as the Architectural Conservation District adjacent to the project site. For these structures, the standard foundation practice was support by untreated timber piles, typically 7.5 to 12 m (25 to 40 ft) long, driven in the sand layer below the fill and original organic layers. These foundations generally perform well, except when they are exposed to air. These structures can be "affected adversely if the groundwater table is lowered by changes in drainage patterns, by dewatering during construction, or by pumping water from deep aquifers.... As long as the piles are kept constantly waterlogged, the wood will not rot and the piles can be considered permanent."[1]

Maintenance of groundwater levels is a major concern in this area as it is vital in the preservation of the historic structures. The DEIR anticipates that the groundwater level will fluctuate during the construction period. Is there a range of fluctuations that might reasonably be expected? At what level of fluctuation might off site impacts be anticipated? What actions will be taken if the groundwater fluctuates below acceptable levels? Who will be notified and what remedial actions will be implemented?

Apart from construction, this project, with its three levels of parking below grade, presents a significant long term risk to groundwater levels in the area. The elevation of groundwater on and off site may be affected, and the direction of flow patterns may be altered as well. The comments of SPNEA note that 181 surface parking spaces are being replaced by 270 subsurface parking spaces. Every effort should be made to reduce the risk of impacting groundwater elevations and patterns, including consideration of reducing the size of the proposed excavation and the number of parking spaces proposed.

The FEIR must present a thorough groundwater analysis, based on detailed information on depth to groundwater, groundwater flow and soil conditions at and around the site, especially in the adjacent historic district. The FEIR must identify and evaluate long and short term potential impacts of the proposed project on groundwater, as well as the possible impacts to historic resources resulting from changes in groundwater conditions. The long term groundwater monitoring plan needs significantly more information and should be developed in greater detail in the FEIR. Where should observation wells be placed and how frequently should they be monitored? To whom will this data be reported?

Wind Impacts/MBTA Impacts

The project will produce significant wind impacts at the MBTA stops on Commonwealth Avenue in the vicinity of the project. The DEIR notes that the wind conditions at these locations (17 and 33) will exceed the level of comfort for standing, sitting and walking. Pedestrian waiting areas have been proposed in the DEIR as mitigation. The FEIR should provide plans for these shelters, an analysis of how these shelters would function and a discussion on how the impacts of these wind conditions will be mitigated at these locations. The proponent should ensure that sufficient shelter is provided to meet the need at these locations.

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[1] Dr. Harl P. Aldrich, Jr., "Preserving the Foundations of Older Buildings: The Importance of Groundwater Levels," Technology and Conservation, Vol. 4. No. 2, Summer, 1979, p.32.

I note that the quantitative analysis of wind impacts has improved since the DPIR. The FEIR should provide additional information on the proposed mitigation. The proponent has indicated that the landscaping plan is part of the wind mitigation package. Therefore, a detailed landscaping plan should be submitted with the FEIR. The FEIR should explain how the landscaping contributes to the mitigation and how long term success will be achieved. What is the long term reliability of using landscaping for mitigation of wind impacts? This discussion should evaluate the proposal with respect to applicable design standards (American Society of Landscape Architects or other applicable professional standards).

Comments

The FEIR should respond to the substantive comments received on the DEIR.

January 28, 1994
Date

Trudy Coxe

Comments:
BWSC
MHC
MBTA
SPNEA
BRA
Preservation Boston
National Trust for Historic Preservation
Y. Homsey
S. Corn
Bay State Road Association
BU Community Task Force
Kenmore CEDC
Kenmore Residents Group
Baker Design (two letters)
E. Holt
P. Steiger
Bay State Road Civic Assoc.
L. Kluge

TC/JD/jd

P:DEIR9202

2.0 PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.1 INTRODUCTION

The purpose of this chapter is to provide a description of existing conditions of the Project site, design objectives, and proposed building uses and design elements for the new School of Management project. The existing condition and No-Build alternative are considered to be the same as continued use of the site as parking lots. The Project, originally envisioned as a ten story building, consists of nine stories. A comparison of the two alternatives is included, but the primary focus of the Project description is on the reduced nine story alternative as this is the preferred alternative. Since overall concepts remain the same for both nine and ten story alternatives, not all sections require a discussion of both alternatives. A discussion of an alternative reflecting the underlying B-4 zoning is also provided in this chapter for comparison purposes.

2.2 PROJECT OBJECTIVES

2.2.1 SUMMARY OF GOALS

The overall goals of the new School of Management project are to upgrade and consolidate the current School of Management facilities including some executive administrative space. The Project is also designed to significantly improve pedestrian safety, create desirable urban features, and enhance economic opportunity for Kenmore Square area businesses.

The following is a summary of benefits relating to safety and urban design in addition to academic space needs which will result from the new Boston University School of Management project.

- Improve the quality of the School of Management through updated facilities which respond to state-of-the-art teaching techniques and curriculum.
- Consolidate academic and some administrative activities on campus.
- Contribute to the vitality and safety along sections of Commonwealth Avenue.
- Satisfy urban design objectives by filling the visual gap presented by existing site uses and create a continuity of buildings.
- Provide a visual gateway at the eastern end of the Commonwealth Avenue campus.
- Provide pedestrian improvements including new landscaped areas, streetscaping elements, and a reduction in curbcuts from five to one.
- Improve pedestrian and traffic safety through consolidated class locations and reduce pedestrian trips along and across Commonwealth Avenue between classes.
- Enhance commercial markets for Kenmore Square businesses.
- Contain development within Master Plan growth corridor.

Project benefits are also discussed in Chapters 1.0, Project Summary and later in this chapter.

2.2.2 SCHOOL OF MANAGEMENT GOALS

The current management program at Boston University is an established program of study, as described in the Background section of Chapter 1.0, Project Summary. In order for the School of Management to maintain its competitive edge within the national student pool and remain competitive with management programs offered at other schools and universities, it is necessary for the School of Management to continue to improve and upgrade its facilities. The Boston University School of Management is currently scattered in six locations along Commonwealth Avenue in antiquated 60-year old buildings. It is impossible to create and implement highly technological and innovative programming in these older facilities. The University is responding to this challenge with the following two-fold action plan.

1) Update the School of Management program to offer an innovative approach to its management curriculum, thus promoting integrated, high technology programming while incorporating the Leadership Institute (currently located in Tyngsboro, MA).
2) Develop state-of-the-art facilities which physically allow consolidation and integration of programs which require high technology equipment; attractive facilities including updated library, lecture hall, case study rooms, and breakout rooms; and computer facilities.

2.2.3 EXECUTIVE ADMINISTRATION AND PARKING GOALS

Executive administrative space on the Charles River Campus is scattered throughout campus in antiquated facilities which cannot easily be upgraded or updated to accommodate modern technology. The Project will fully address the School of Management needs and partially provide improved operations of executive administration functions.

The Project also includes enough parking on-site to service activities in the building. The number of spaces balances the need to serve activities within the Project, yet encourage alternative modes of transportation such as public transit, bicycling, and walking. Because other parking facilities in the area are currently at capacity, it is important that the Project include enough parking on-site so adjacent neighborhoods will not be overburdened by activities associated with the Project.

2.3 SURROUNDING AREA

The new School of Management site is located in the heart of Boston University's Charles River Campus, near the Kenmore Square area at the northeast corner of Sherborn Street and Commonwealth Avenue, and across from the Arthur B. Metcalf Center for Science and Engineering. It is bounded by the Howard Johnson's Motor Lodge to the east, a University dormitory which houses over 500 students to the north, mixed commercial and educational uses along Commonwealth Avenue to the south, and the School of Education across Sherborn Street to the west. The buildings in the area contain a mix of commercial, academic, and residential uses. The site is adjacent to the Bay State Road-Back Bay West Historic District to the north where the

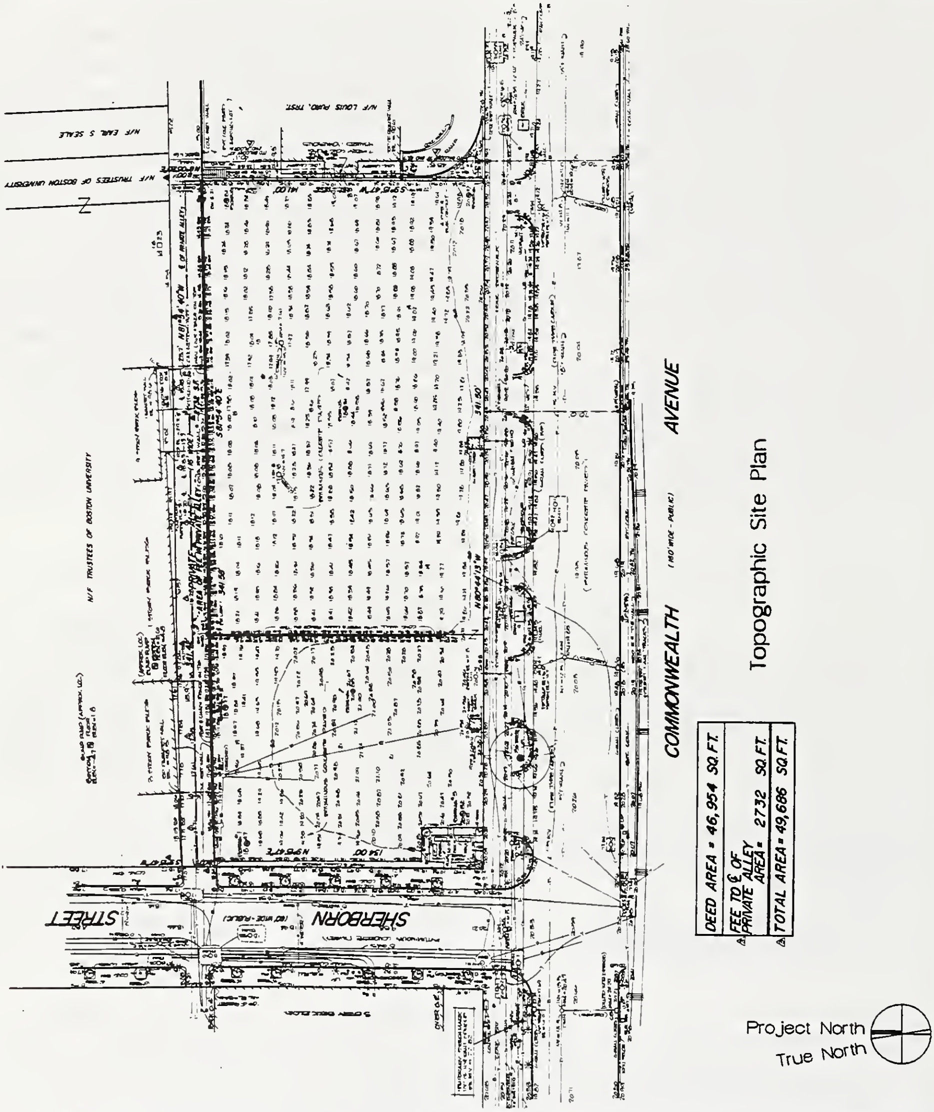
University owns and occupies over one million square feet of space used for offices, faculty residences, and housing for over 2,800 students. The University owns all properties abutting the Project site and the majority of buildings in the vicinity, including those along Bay State Road. Within a five minute walk of the Project site are facilities which contain five University colleges (Sargent College, College of Communications, College of Engineering, College of Liberal Arts, and School of Education), a 1,500 bed dormitory (Warren Towers), and the Boston University Bookstore Mall. Since 1980, the University has invested over $206 million in capital improvements within this area alone.

The area around the Project site is characterized as an urban campus including several small urban open spaces near the site, one brick and concrete plaza across Commonwealth Avenue (in front of the Metcalf Center and the College of Communications), and a narrow park located behind the site across the alley next to the Boston University dormitory on Bay State Road. Approximately 500 feet from the site is the south bank of the Charles River which offers public recreational biking, walking and picnicking. This part of the Charles River is included in the Charles River Basin historic district. The Project site is in close proximity to Kenmore Square, an intensely commercial area.

The Project site is served by several transportation modes. The MBTA provides both bus and trolley service. The "B" branch of the Green line Blandford Street stop is located in the Commonwealth Avenue median strip directly across from the Project site. This line runs from downtown out Commonwealth Avenue to Boston College. The area is served by MBTA bus routes #47 and #57. Route #47 runs between Central Square in Cambridge across the Charles River campus via the Boston University bridge to Boston City Hospital near the Boston University Medical Center. Route #57 runs from Kenmore Square to Watertown via Commonwealth Avenue with a stop at Commonwealth Avenue and Sherborn Street. The University also operates two shuttle bus routes. One route serves the Charles River Campus internally. The second route provides runs between the Charles River Campus and the Boston University Medical Center Campus.

2.4 EXISTING CONDITIONS

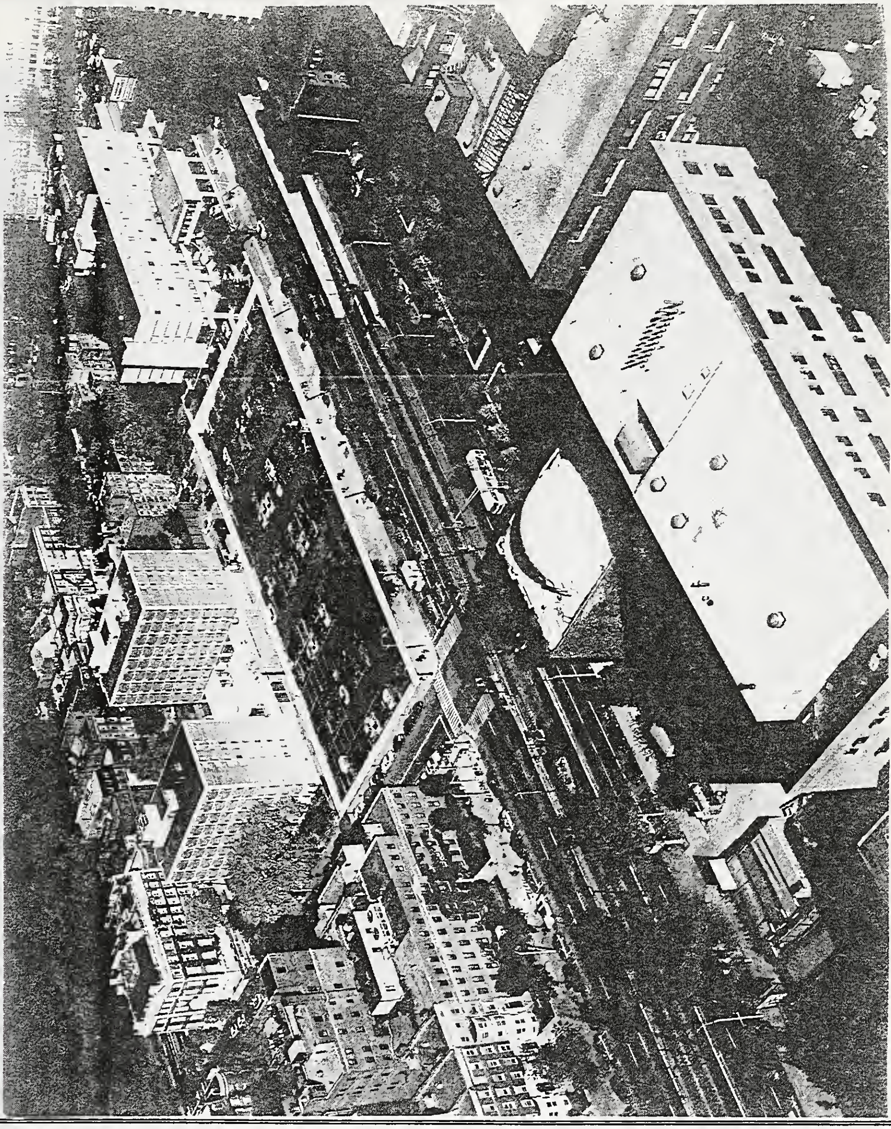
The Project site is currently used as University surface parking lots containing 181 parking spaces. The site consists of a rectangular parcel of approximately 49,686 square feet. There are two small wooden parking attendant booths on the site, and a small landscaped area at the southwest corner. Two retaining walls varying in height from 1 to 2 feet bound the north and east property lines. The site is located along the north side of Commonwealth Avenue between Deerfield and Sherborn Streets and extends back from Commonwealth Avenue to an alley. It is relatively flat with the elevation varying from approximately 18 feet (Boston City Base) on the north side, to 20.5 feet on the south side. A survey and topographic site plan is provided in Figure 2-1. Existing conditions of the Project site are shown in Figures 2-2 through 2-8.


N/F EARL S. SEALE
N/F TRUSTEES OF BOSTON UNIVERSITY
N/F LOUIS RUBO, TRST.
N/F TRUSTEES OF BOSTON UNIVERSITY
COMMONWEALTH AVENUE
(100' WIDE - PUBLIC)
SHERBORN STREET
(60' WIDE - PUBLIC)
Topographic Site Plan
DEED AREA = 46,954 SQ.FT.
FEE TO ℄ OF PRIVATE ALLEY AREA = 2732 SQ.FT.
TOTAL AREA = 49,686 SQ.FT.
Project North
True North

Topographic Site Plan

Prepared By:
H.R. Feldman

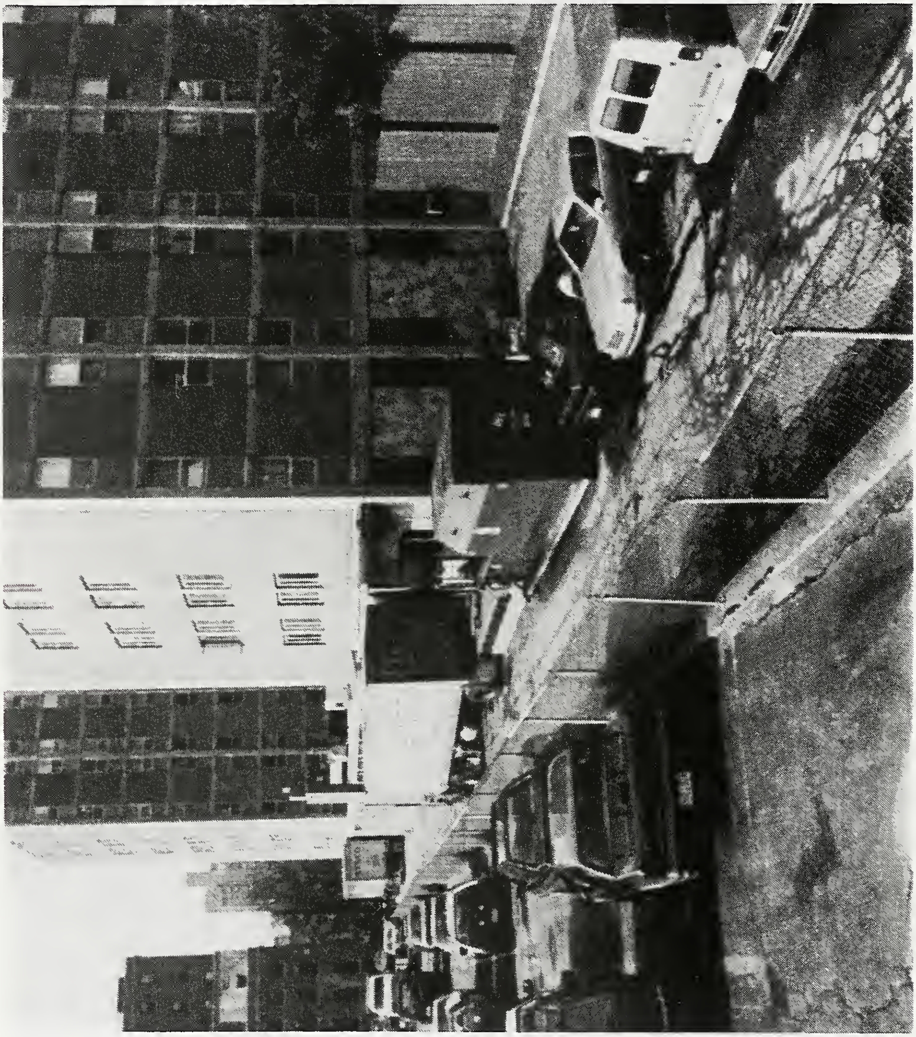
Figure 2-1



Existing Project Site

Prepared By:
Cannon

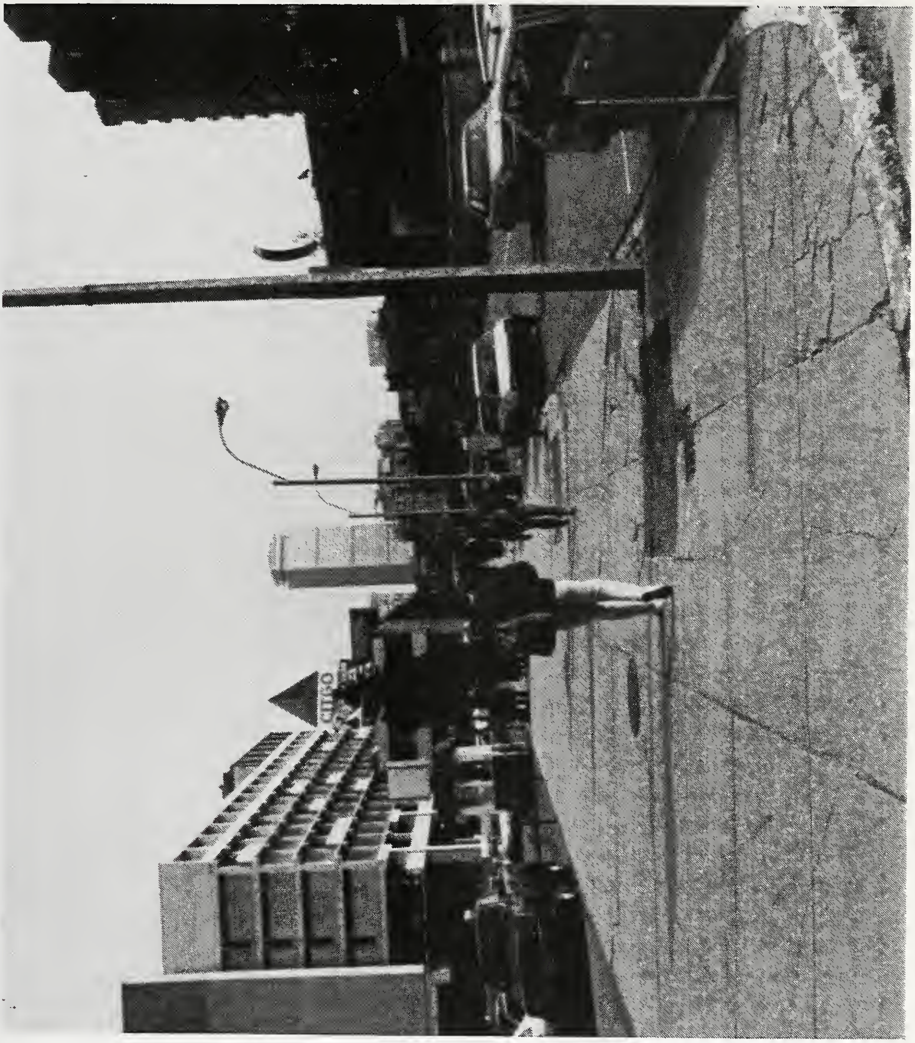
Figure 2-2



Existing Site - Alley Looking West

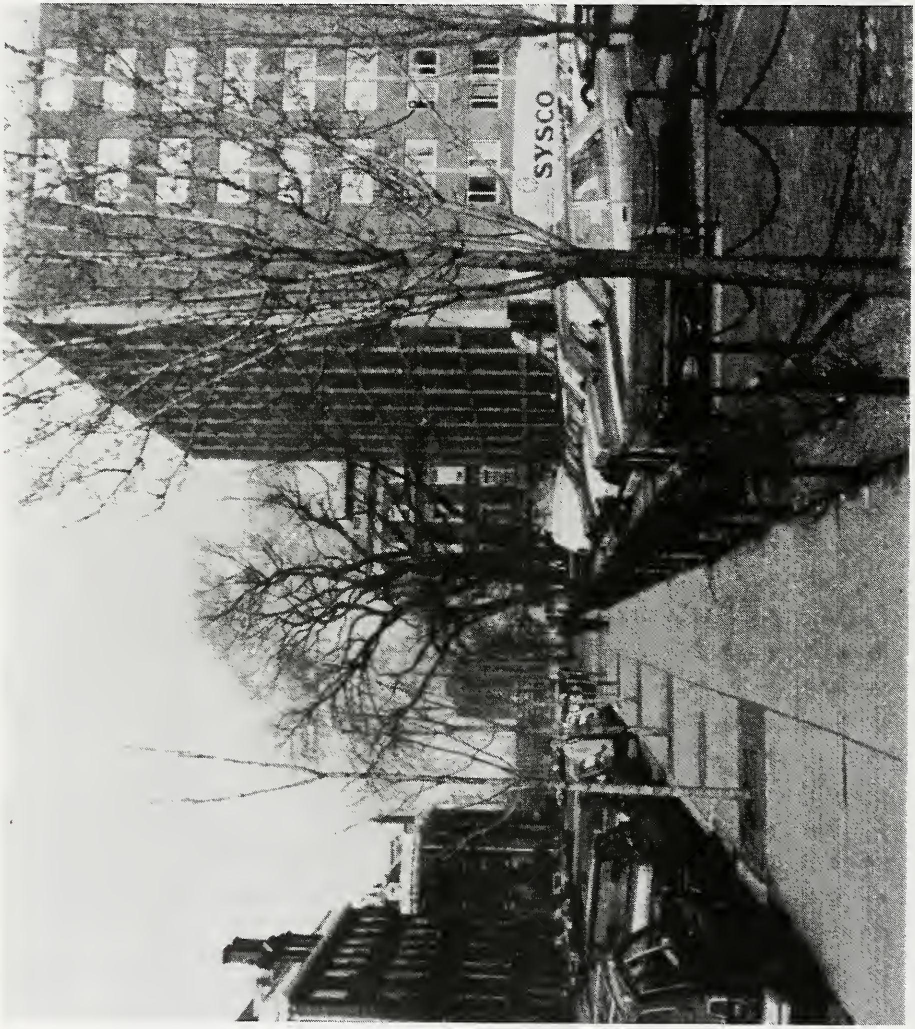
Prepared By:
Cannon

Figure 2-3



Existing Site - Commonwealth Avenue Looking East

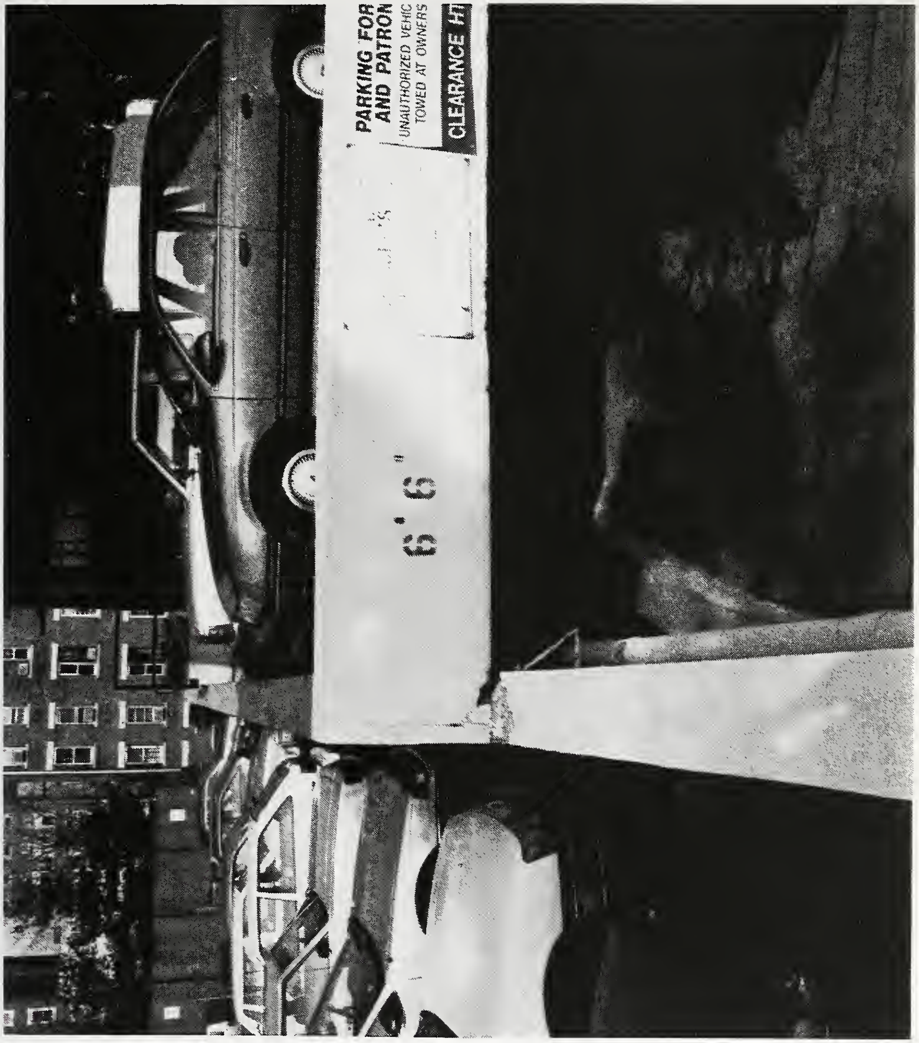
Prepared By: Cannon	**Figure 2-4**



Existing Site - Sherborn Street Looking North

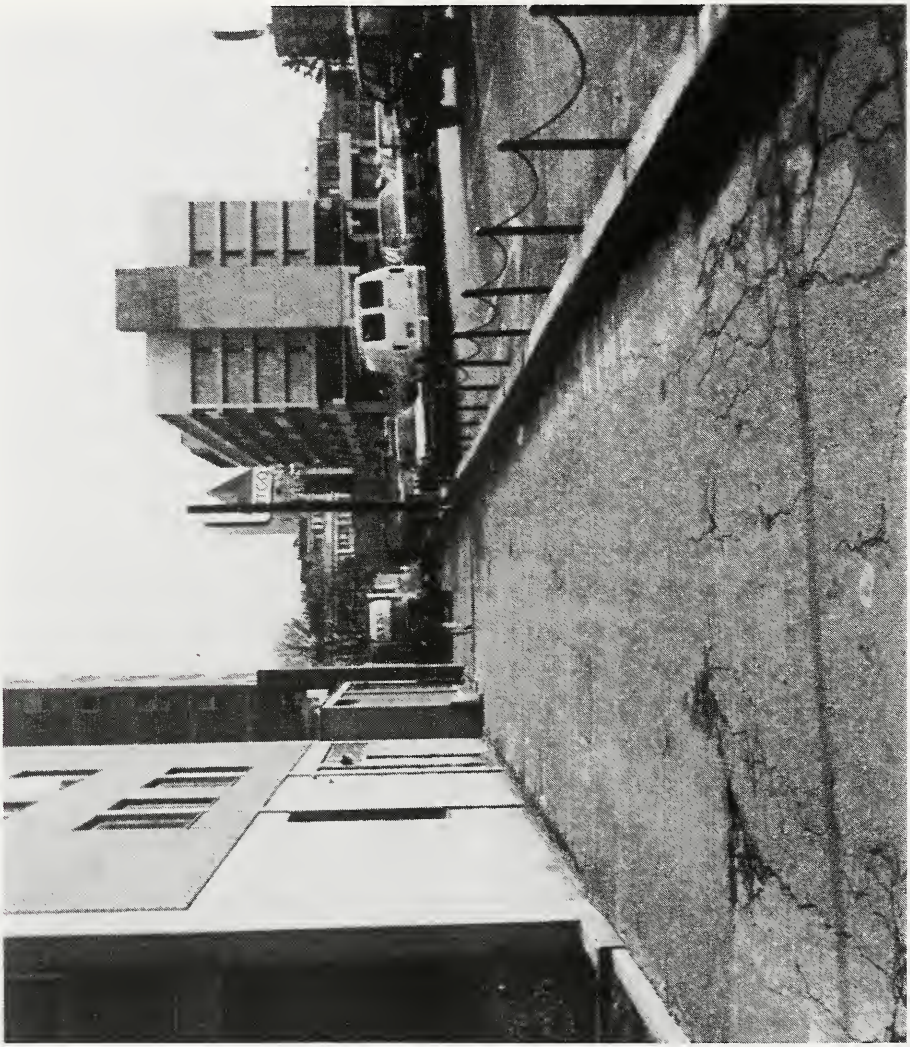
Prepared By: Cannon

Figure 2-5



Existing Site - Howard Johnson's Motor Lodge to the East

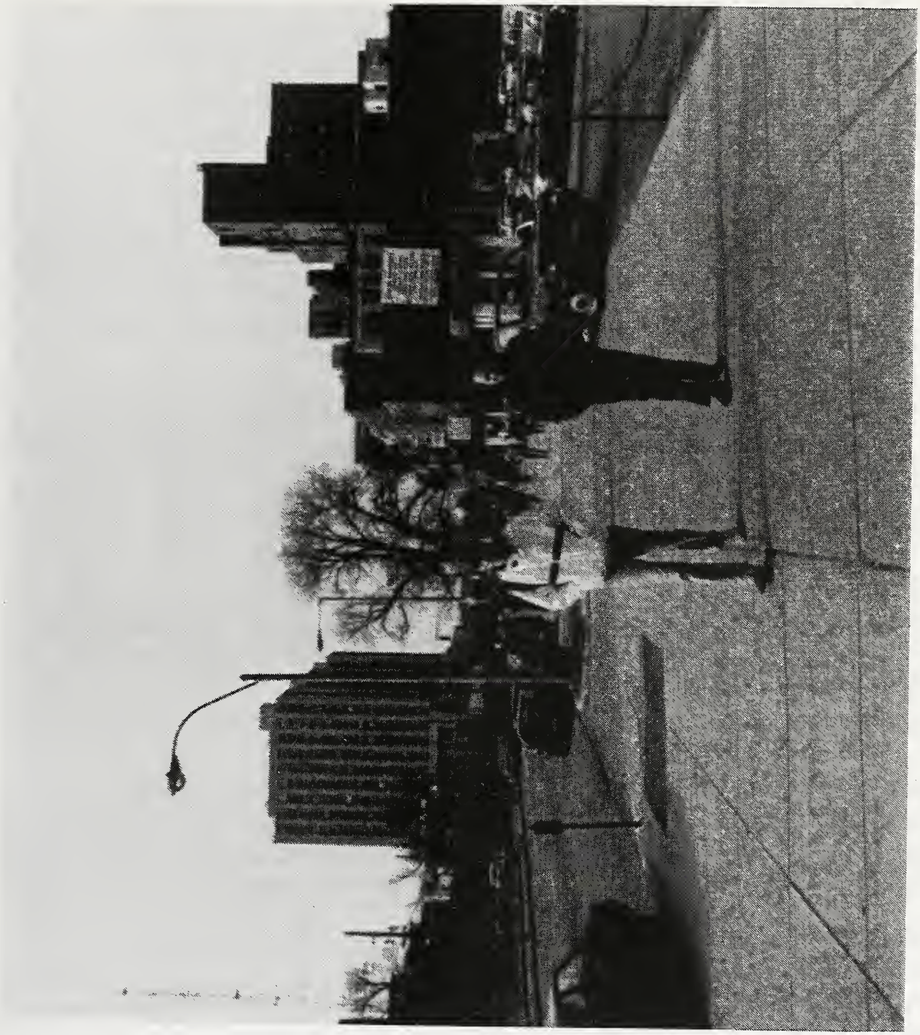
Prepared By: Cannon	***Figure 2-6***



Existing Site - Alley Looking East

Prepared By:
Cannon

Figure 2-7



Existing Site - Commonwealth Avenue Looking West

Prepared By: Cannon

Figure 2-8

2.5 PROJECT DESCRIPTION - PREFERRED ALTERNATIVE

The original new School of Management project design included a ten story building, approximately 184 feet high, containing approximately 366,000 gross square feet (see Section 2.6 below). In response to concerns expressed through city and state review processes about height and massing, a reduced nine story building alternative has been developed. The reduced nine story design is the preferred alternative because it reflects a consensus from community groups, the BRA Board, and the Boston Zoning Commission. It largely achieves the University's needs, satisfies the city regulatory agencies, and the majority of affected community groups. As the preferred alternative, the nine story design is the most developed and is used in the detailed project description. The Project concept is shown in Figure 2-9.

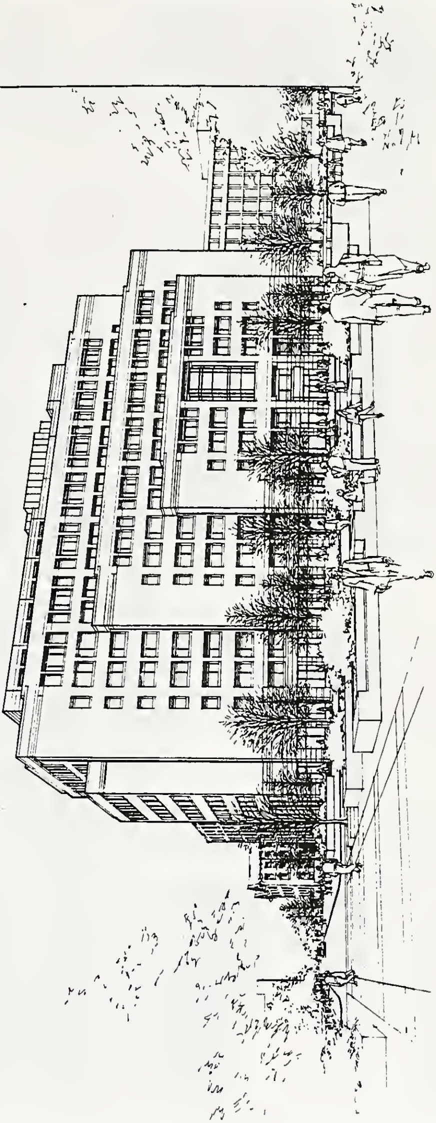
The nine story alternative presents a significant reduction in scale from the original ten story project. This alternative reflects an 11% reduction in size to approximately 321,700 gross square feet (as defined by Boston Zoning Codes) and reduced Floor Area Ratio (FAR) of 6.5. The program reduction eliminates approximately 39,000 square feet or approximately 28% of the executive administrative program proposed in the ten story alternative.

The height of the building has been reduced by deleting one of the larger floors, reducing the height of the mechanical penthouse, and reducing administrative floor-to-ceiling heights. The result is a height reduction of 18 feet. As a result of the reduced square footage and height, the massing and bulk of the building have been significantly reduced.

2.5.1 BUILDING PROGRAM

The nine story project contains approximately 321,700 gross square feet of academic instructional and administrative space. The Project also contains 270 parking spaces in three levels below grade. The building has a 38,000 square foot footprint the height of the building is approximately 166 feet, including the mechanical penthouse. A site plan of the Project is shown in Figure 2-10.

The first six floors of the building will be dedicated to the new School of Management and contain approximately 221,400 square feet of gross floor area. Within the new facility, there will be a lecture hall with an estimated 400 seats, classrooms, seminar/conference and case-study rooms, computer labs, a library with approximately 310 seats, office space for School of Management faculty and administrators, research institutes and staff, and a 170-seat canteen and executive education center. The remaining floors of the project, seven through nine, will contain approximately 100,300 square feet of gross floor area set aside for executive administration offices and Board Room facilities.

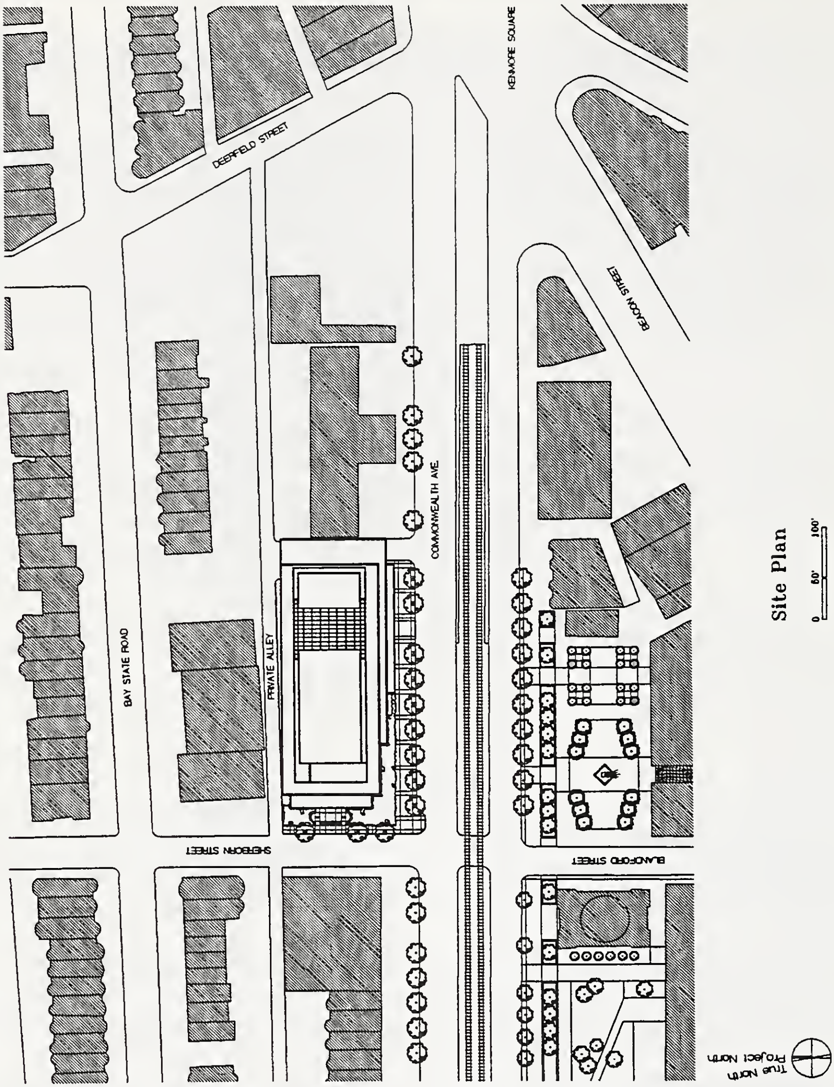


Building View From Commonwealth Avenue

Project Concept

Prepared By:
Cannon

Figure 2-9



Site Plan

Prepared By:
Cannon

Figure 2-10

Separate identities for the School of Management and executive administration will be defined through the two entrances to the building. The new School of Management entrance is located on Commonwealth Avenue while the entry to the executive administrative offices is situated along Sherborn Street. Loading docks are provided from the rear alley. Project access is further discussed in later sections.

The Project size and massing are determined by the program needs described above. The building design provides an adequate area for structured parking in below-grade levels. The base of the building is aligned with building edges toward Kenmore Square at the east and steps back to align with the buildings to the west which are setback from the sidewalk. This design further serves to reduce the massing impact. A lightening effect is created through the recessed entry and the use of a limestone color pre-cast material.

The design of the building features an enclosed atrium extending from the ground floor through the six School of Management floors. This reflects the new program objectives by allowing visual contacts and encouraging community interaction within the school. At the ground floor, the atrium feature also provides areas for informal gatherings. Figures 2-11 through 2-14 show representative floor plans for the preferred alternative. Table 2-1 shows the building area by floor.

The building's facade employs warm red brick with fabricated limestone color pre-cast materials which reinforce the architectural signature of the campus. Granite is used to define the base of the building at the ground level. The facade design offers a lively rhythm of solids and voids with emphasis on the projecting volume as the identifying element of the Project. Figures 2-15 and 2-18 show typical elevations.

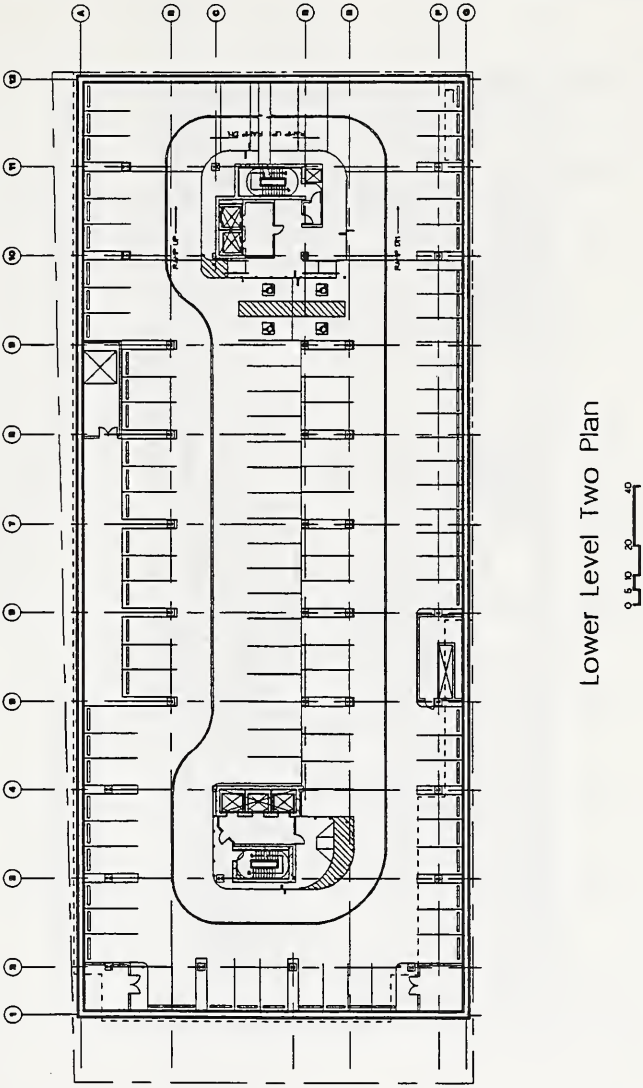
The new School of Management building, is representative of significant new development in a section of Boston which has not kept pace with the infusion of construction experienced in the 1980's. While prominent, the Project will not be overbearing or out of context. When viewed in relation to other representative buildings near the site, it can be seen how the Project fits into the commercial and campus area. For comparison purposes, nearby buildings which range in height from a Bay State Road townhouse at approximately 42 feet in height to the nearby Boston University Law School at over 232 feet in height were examined. In between this range is the Boston University dormitory on Bay State Road at approximately 79 feet, 566 Commonwealth Avenue (Kenmore Tower) at approximately 123 feet, and 700 Commonwealth Avenue (Warren Towers) at 176 feet. The new School of Management project fits within the range of buildings as illustrated in Figure 2-19.

Table 2-1

Building Program Summary - Preferred Alternative (Nine Story)

SCHOOL OF MANAGEMENT			
		Gross Square Feet (rounded)	
Garage		**3,200**	
	Media		
	Computer		
	Miscellaneous Support		
Ground Floor		**36,200**	
	Lecture Hall		
	Graduate Program Administration		
	Career Planning/Placement		
	Undergraduate Program Administration		
Floor 2		**35,500**	
	Library		
	Canteen		
	Student Government/Lounge		
	Classrooms		
Floor 3		**37,000**	
	Library		
	Student Lounge		
	Classrooms		
Floor 4		**37,100**	
	Library		
	Executive Education Center		
	Classrooms		
Floor 5	Faculty Offices	**36,900**	
Floor 6	Faculty Offices	**35,500**	
SUBTOTAL			**221,400**
EXECUTIVE ADMINISTRATION			
Floor 7	Offices	**38,300**	
Floor 8	Offices	**31,000**	
Floor 9	Offices and Board Room	**31,000**	
SUBTOTAL			**100,300**
TOTAL			***321,700***
Mechanical Penthouse		**18,800**	
Below Ground (3 levels)		**122,100**	
	Parking/Mechanical		
	Storage		
	Operations Areas		

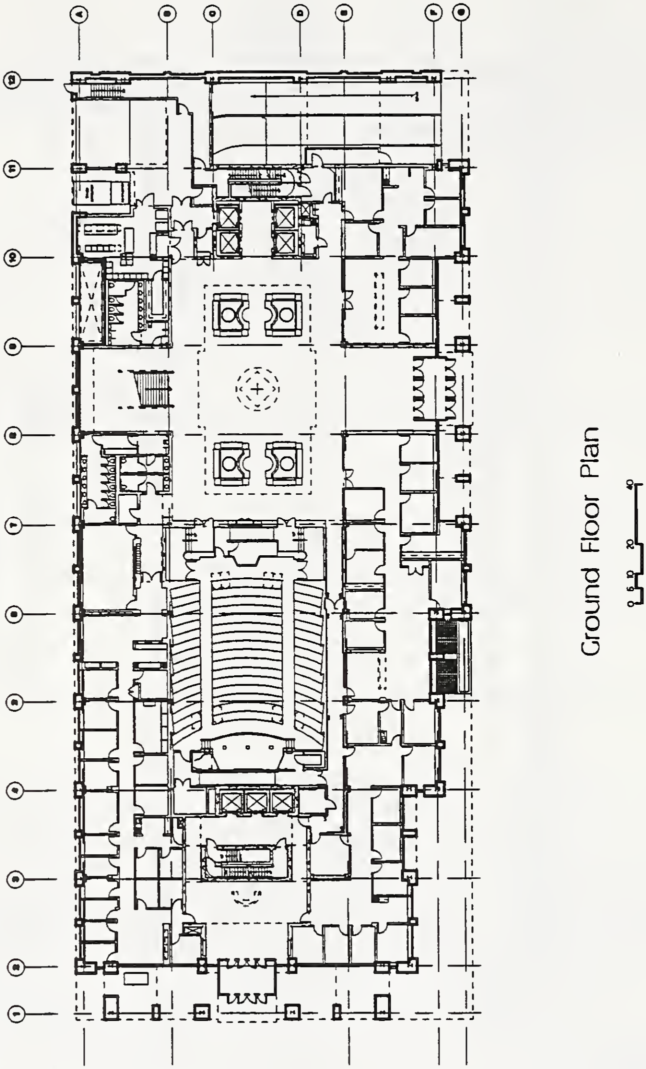
Source: Cannon



Typical Parking Level Plan

Prepared By: Cannon

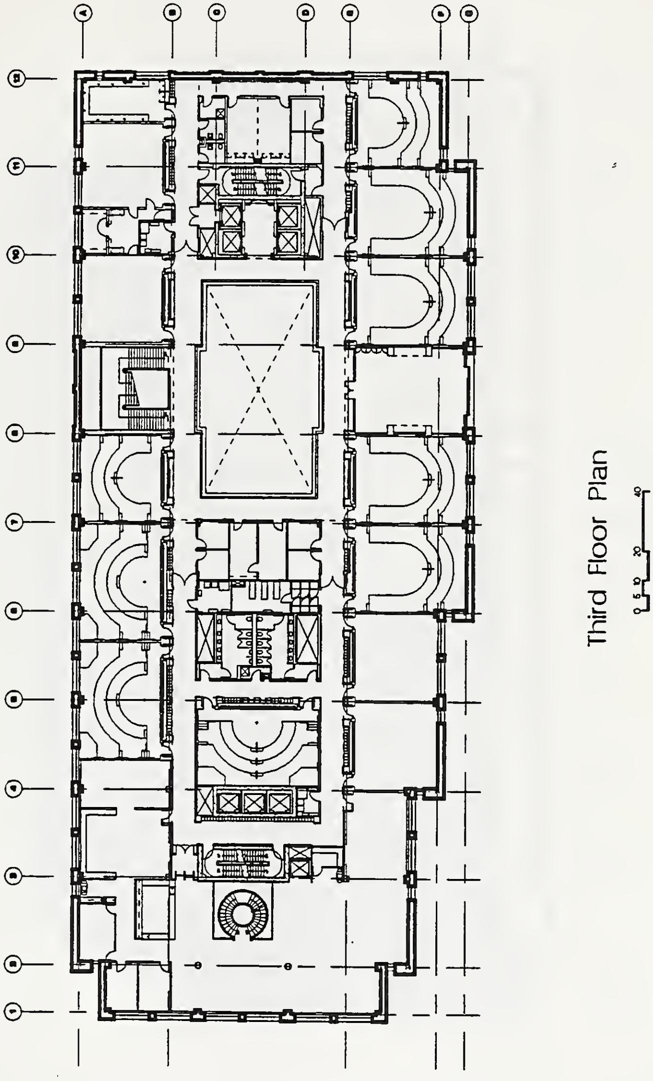
Figure 2-11



Entry/Ground Floor Plan

Prepared By:
Cannon

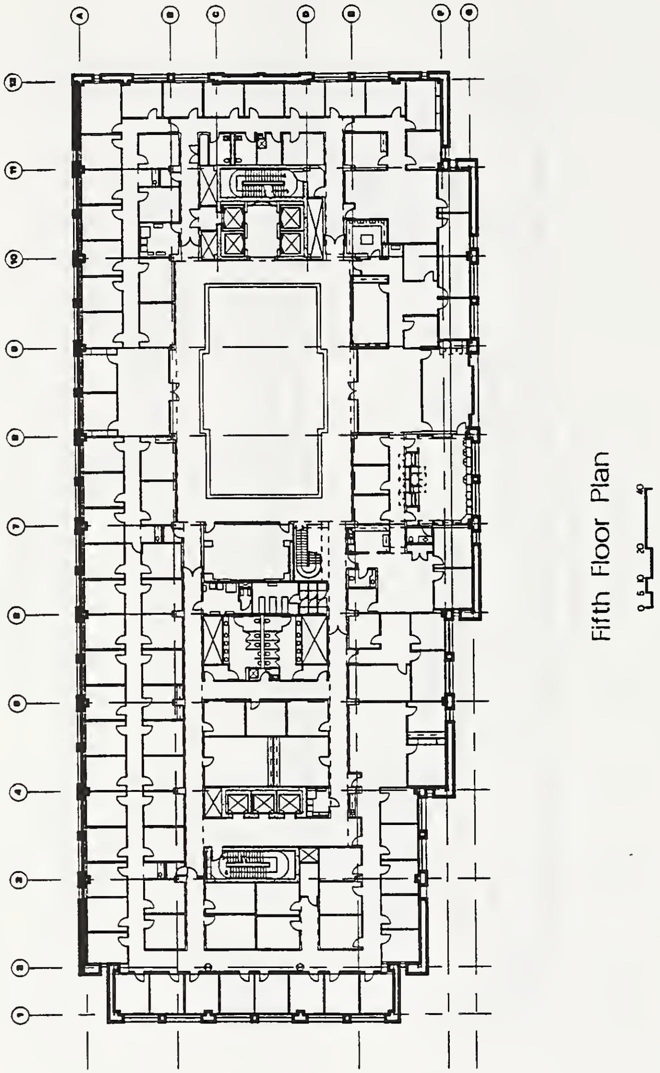
Figure 2-12



Typical Classroom Floor Plan

Prepared By: Cannon

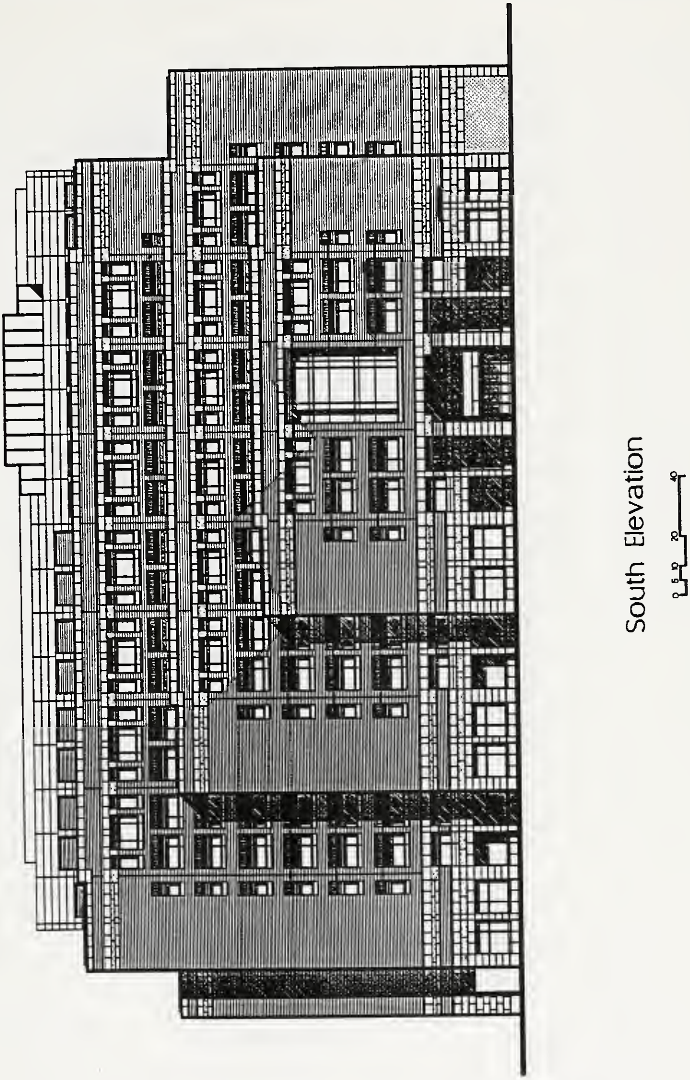
Figure 2-13



Typical Administration Floor Plan

Prepared By: Cannon

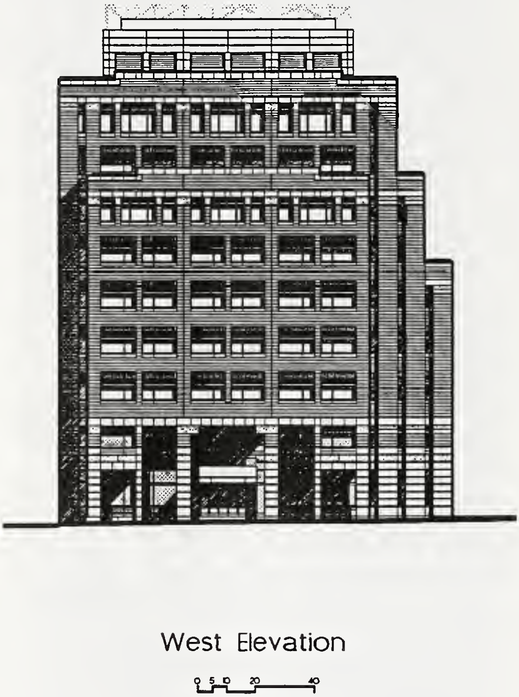
Figure 2-14



Commonwealth Avenue Elevation

Prepared By:
Cannon

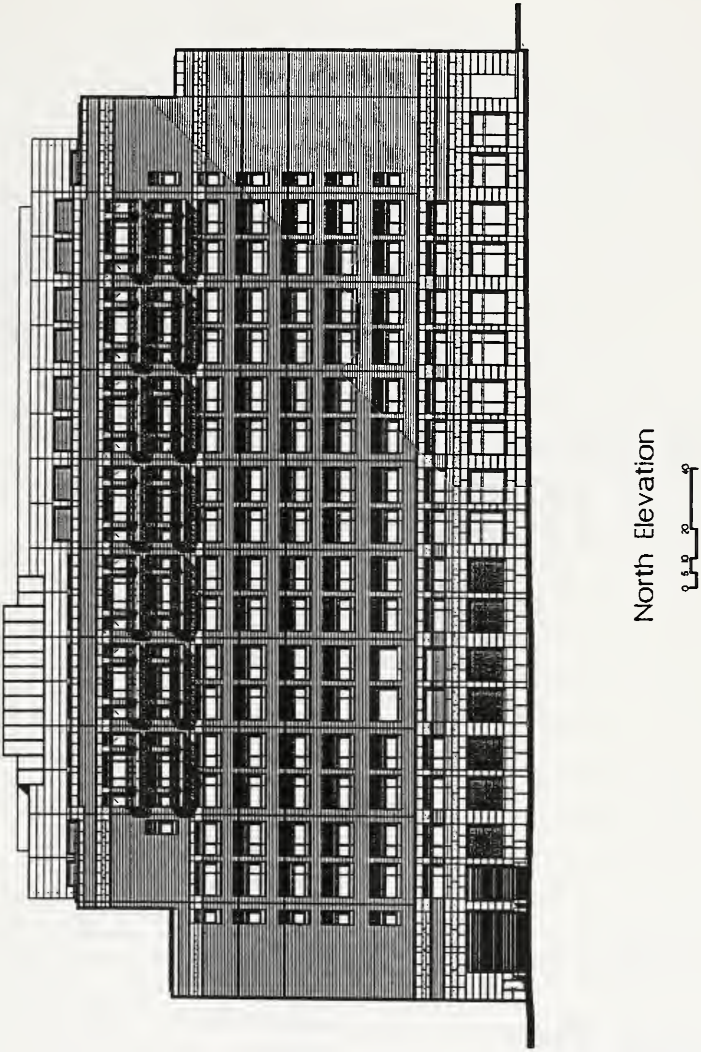
Figure 2-15



Sherborn Street Elevation

Prepared By:
Cannon

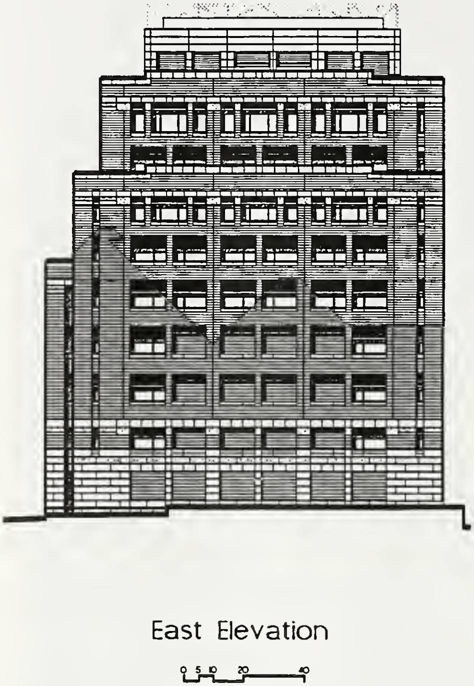
Figure 2-16



Private Alley Elevation

Prepared By:
Cannon

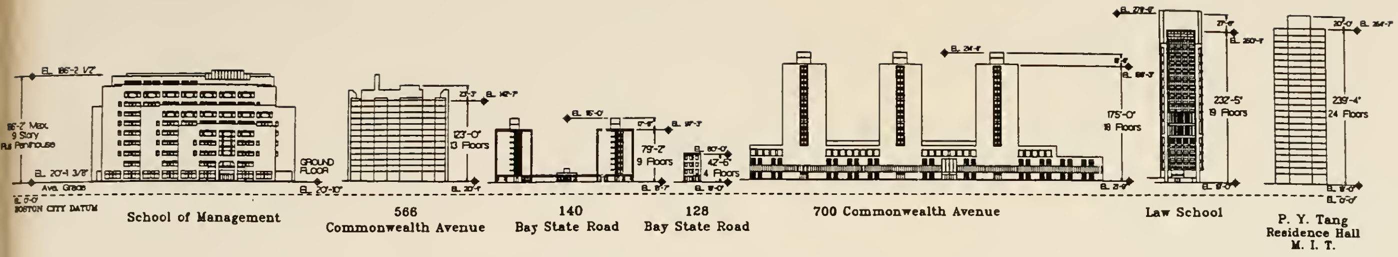
Figure 2-17



Elevation Adjacent to Howard Johnson's Motor Lodge

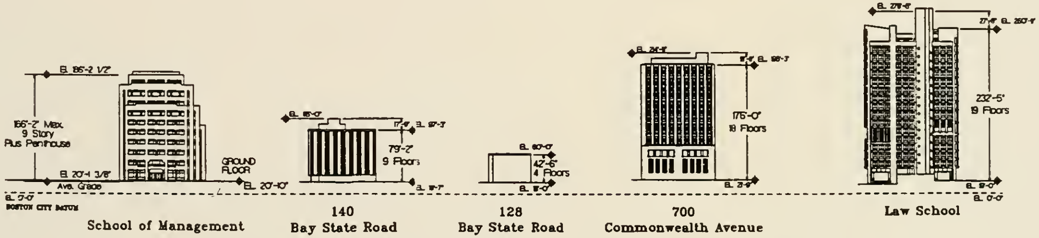
Prepared By:
Cannon

Figure 2-18



Massing Parallel to Commonwealth Avenue

0 50 100 200 FT



Massing Perpendicular to Commonwealth Avenue

0 50 100 200 FT

NOTE: HEIGHTS GIVEN ARE FROM ACTUAL OR APPROXIMATE GRADES PER PRESENT ZONING DEFINITION TO TOP OF ROOF STRUCTURE.

BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

Building Massing Study

Figure 2-19

Prepared By:
Pressley Associates Inc.

January 1994

2.5.2 LANDSCAPING PLAN

At the pedestrian level on both Sherborn Street and Commonwealth Avenue, the proposed treatment of the site from building edge to curb divides the space into three areas: sidewalks coinciding with existing sidewalk widths; a raised planting area wrapping around the southwest corner between the sidewalks and the building; and an entrance plaza serving the administrative offices. The plan has been modified and augmented to provide relief from potential wind impacts and further enhance the Project. The landscape plan can be seen in Figure 2-20.

Sidewalk Treatment

The sidewalk treatment will be upgraded to brick and granite paving with the addition of large street trees along the curb to be more consistent with the newer sidewalks. The shade trees will be aligned with the building bays to tie the facade to the sidewalk space. Wide twelve-inch granite planter curbs will be used along lawn areas to discourage walking across the lawn and to establish visual continuity along the street. This treatment will also define the street edge and emphasize the School of Management entrance. Long concrete planters will be located between the street trees to separate vehicular and pedestrian traffic and to discourage jaywalking. This use of planters is similar to other planters along Commonwealth Avenue thereby reinforcing continuity. Street lighting and furniture including trash receptacles, bicycle racks, and granite seating will enhance the campus quality of the space. There will be additional pedestrian level light fixtures which contribute to street level safety.

Reconstruction of the curb and sidewalk will have the added benefit of eliminating four curb cuts along Commonwealth Avenue and adding a neckdown at the Sherborn Street intersection. The proposed neckdown will improve pedestrian safety by minimizing the crosswalk width. The proposed crosswalks will be paved with brick and granite edging.

The brick selected for sidewalk treatment has been selected for both aesthetic and safety qualities. The brick color adds visual impact alerting motorists to pedestrian activity. The City Hall Blend brick is widely used in the City and provides a tread-like, non-slip surface. Furthermore, brick which can handle 8,000 psi is stronger and more durable than concrete which can handle 4,000 psi. Tree grates will be square 8-foot grates which can accommodate 6.5 to 7-inch caliber street trees. They have been selected to meet Americans With Disabilities Act guidelines.

Administration Entrance Plaza

Aligning the Sherborn Street grade level facade of the new building with the facade of the dormitories to the north has created an opportunity to include a formal courtyard leading to the entrance of the executive administration. The brick and granite courtyard is raised several steps above the sidewalk and features two circular granite sitting areas. The granite and buttress rounds will visually match the granite elements of the building. Access for persons who cannot negotiate the steps will be possible by a walk north of the steps which loops back along the facade of the building.

Plant Bed

The planted area will feature large deciduous and evergreen trees, flowering accent trees, shrubs, groundcover, and lawn. It will be separated from the sidewalk by a raised granite curb. The curb treatment and planting area will serve as a front yard which mirrors the setback treatment at the School of Education building immediately across Sherborn Street to the west.

Landscaping features such as trees, and shrubs are good wind mitigation features. As the wind travels through the vegetation, it interacts with the branches and foliage. This creates small turbulence zones at each of these interactive points. Turbulence results in an expenditure of energy from the wind so the result is a much calmer wind on the leeward side of the vegetation. Coniferous vegetation is beneficial year round as it maintains foliage. However, if multiple deciduous vegetation (i.e. several trees in close proximity) are used, the dense branching systems can provide some mitigation during the winter months. A combination of deciduous and coniferous vegetation is often beneficial as the canopy effect of large deciduous trees can intercept upper level winds being deflected to grade, while coniferous vegetation is beneficial in reducing winds traveling closer to grade level. The particular wind flows created by the new School of Management lend themselves to the need for a combination of deciduous and coniferous vegetation proposed in the landscape plan.

In response to concerns about potential wind impacts, the landscape plan was modified in terms of placement and selection of plantings to mitigate pedestrian level wind conditions. Plant materials were selected based on height, width and dense branching formation, and hardiness. Relatively large caliper size trees will be planted to provide immediate mitigation in addition to long term mitigation. Plantings are located densely to impede wind velocity and provide maximum pedestrian protection (see Figure 2-20).

The tree and low level plantings include the following:

- Halka Thornless Honeylocus - a tall (up to 50 feet) moderately wide, densely branched tree with uniform growth;
- Japanese Black Pines - a highly dense evergreen foliage (up to 30 - 40 feet) with low branching which provides vital wind mitigation throughout the problematic winter months;
- Columnar Red Maples - a tall tree (up to 40 - 60 feet) which can grow within the restricted sidewalk area;
- Japanese Zelkova - a tall tree (up to 40 - 50 feet) with dense foliage and an upright branching character which allows pedestrian clearance while providing good width; and

- Saucer Magnolia - a low branching tree (up to 20 - 30 feet) with fairly dense growth which stays within its planting area in width.

Other evergreen shrubs ranging from three to six feet in height will fill gaps below the tree canopy and provide year round protection. Figures 2-21 and 2-22 illustrate west side (Sherborn Street) detail.

Blandford Street MBTA Stop

The University recognizes that the Project will create increased use of the Blandford Street MBTA stop on Commonwealth Avenue, immediately across from the Project site. As part of the new School of Management project, the University will participate in providing shelter and safety improvements to this stop. The improvements will likely include a jersey, or similar barrier at the stop along the street curb with fencing on top in order to discourage jaywalkers crossing Commonwealth Avenue from the stop to and from the Project.

To provide protection from wind and other potentially uncomfortable weather conditions, shelters will be included in the MBTA stop improvements. A shelter approximately 50 feet long will be provided on the in- and out-bound sides of the stop. The shelters will have solid backs and roofs that will deflect winds and cause the wind to expend energy when interacting with the structures. While there may still be some occasional localized increase in wind velocities outside the shelter, wind impacts inside the shelter will be mitigated. In addition to wind and inclement weather considerations, the shelter design takes into account MBTA guidelines which address the narrow platform, vehicle operations, visibility and safety. These shelters have also been designed to be compatible with the new MBTA trolley cars anticipated for the Green Line. The shelter design at the Blandford Street will be similar to shelters at other trolley stops on campus. The MBTA is currently reviewing the conceptual shelter design (see Figures 2-23 and 2-24).

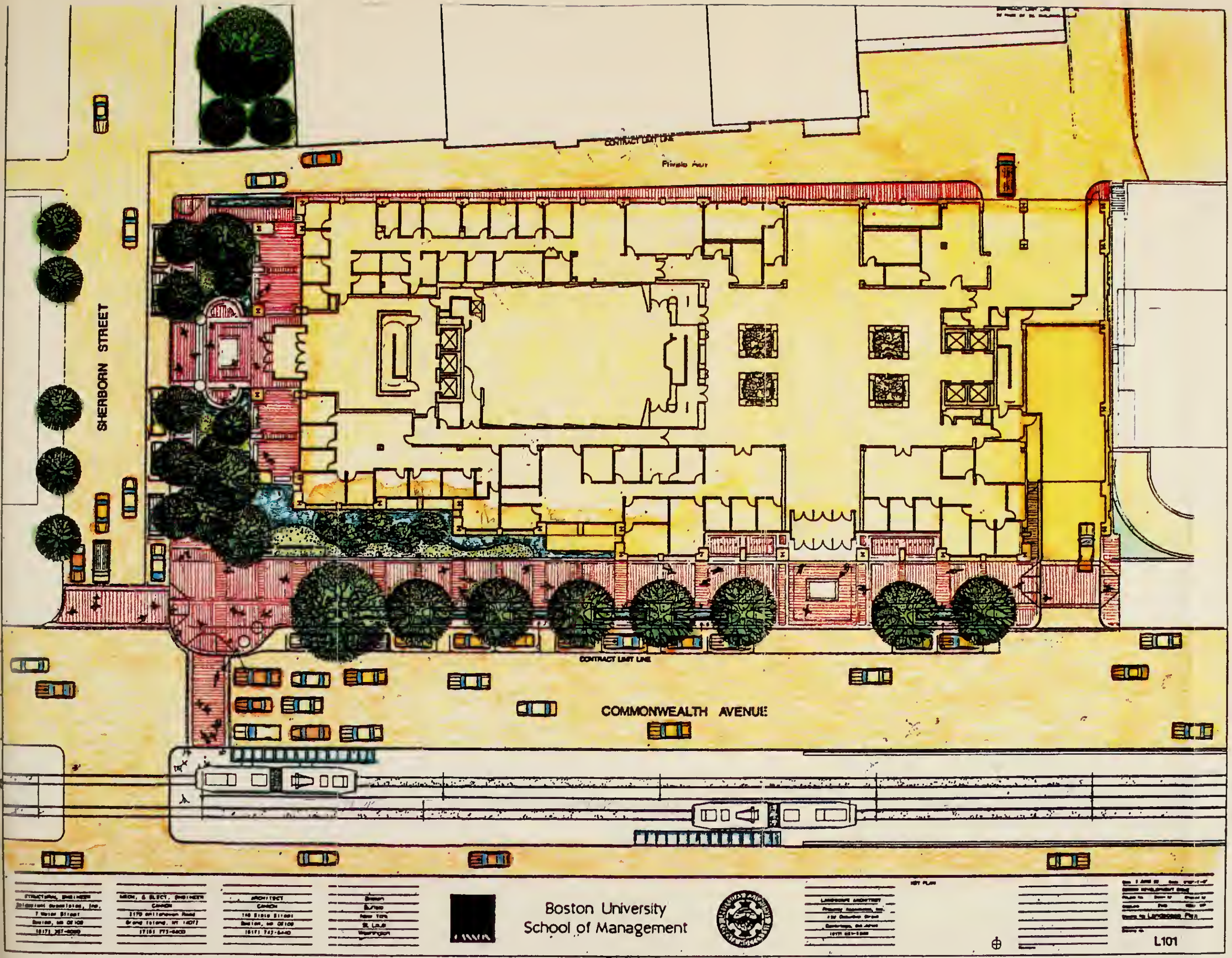
2.5.3 SITE ACCESS

Discussion of access to the site can be subdivided into two categories: user access and service access. The former category can be further subdivided into pedestrian access and vehicular access.

Pedestrian

The predominant path of approach to the site from elsewhere on campus is along Commonwealth Avenue. For this reason, the principal entrance to the building is located along Commonwealth Avenue serving the first six floors of the building containing the School of Management.

The other entrance to the building will serve the executive administration on the upper three floors of the building. The major flux of people in and out of the executive administrative offices



BOSTON UNIVERSITY

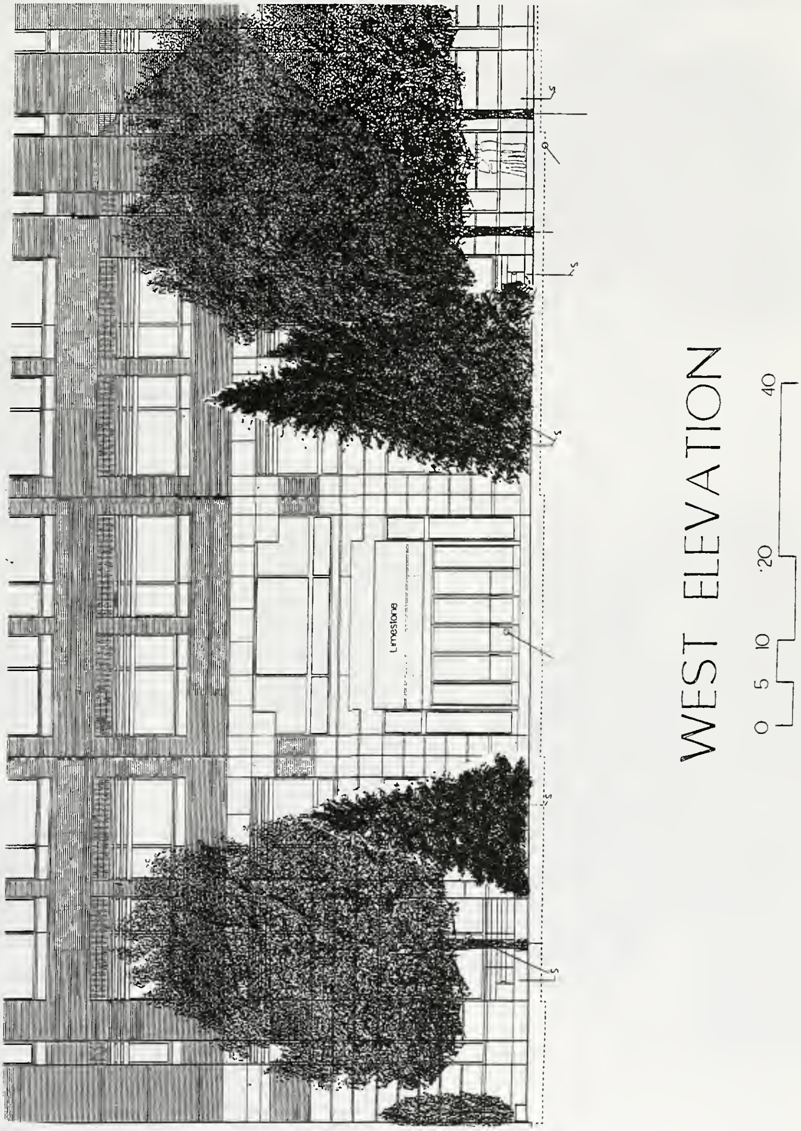
SCHOOL OF MANAGEMENT

Landscape Plan

Figure 2-20

Prepared By:
Pressley Associates Inc.

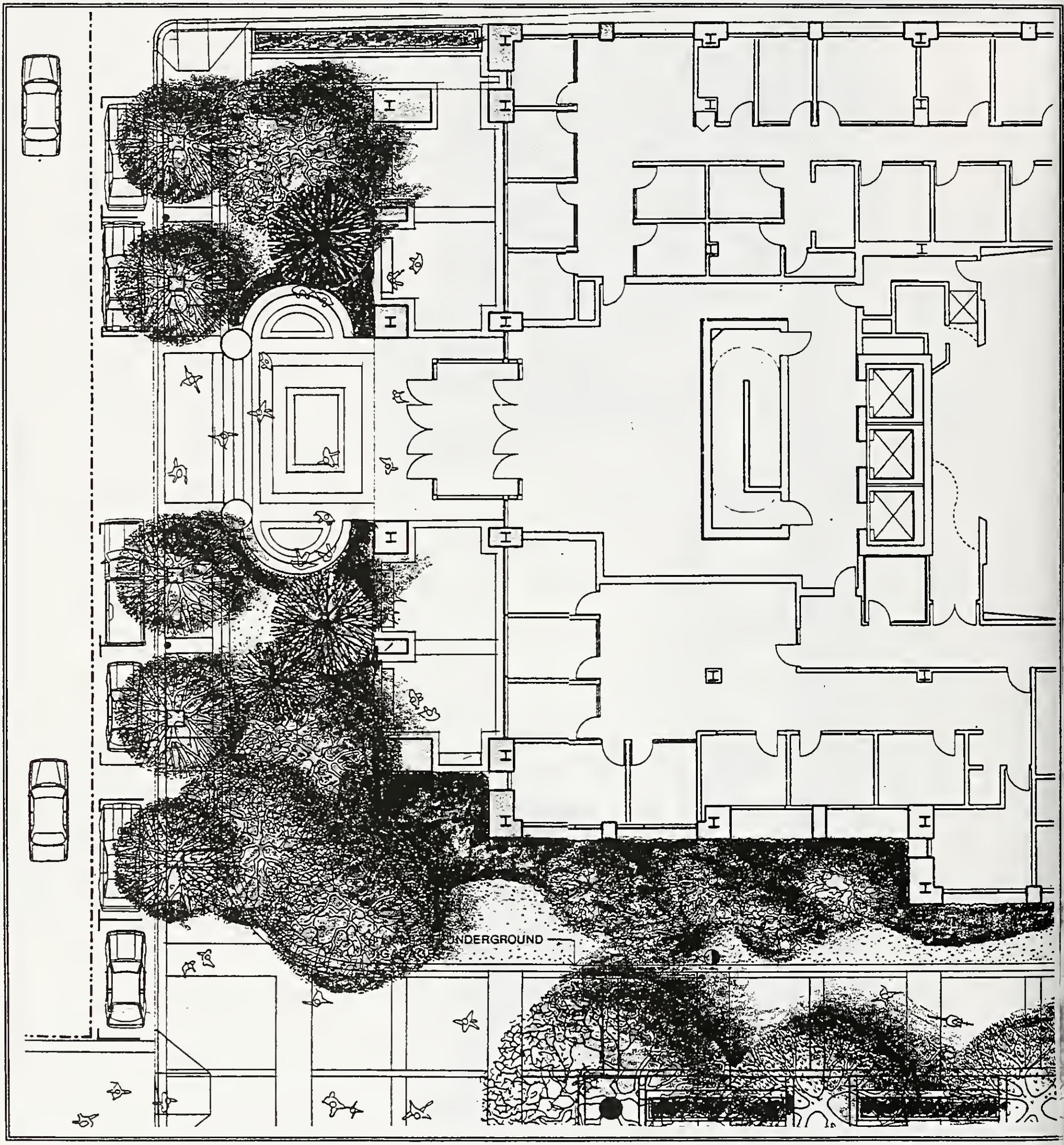
January 1994



Landscaping Detail - West Entrance

repared By:
Cannon

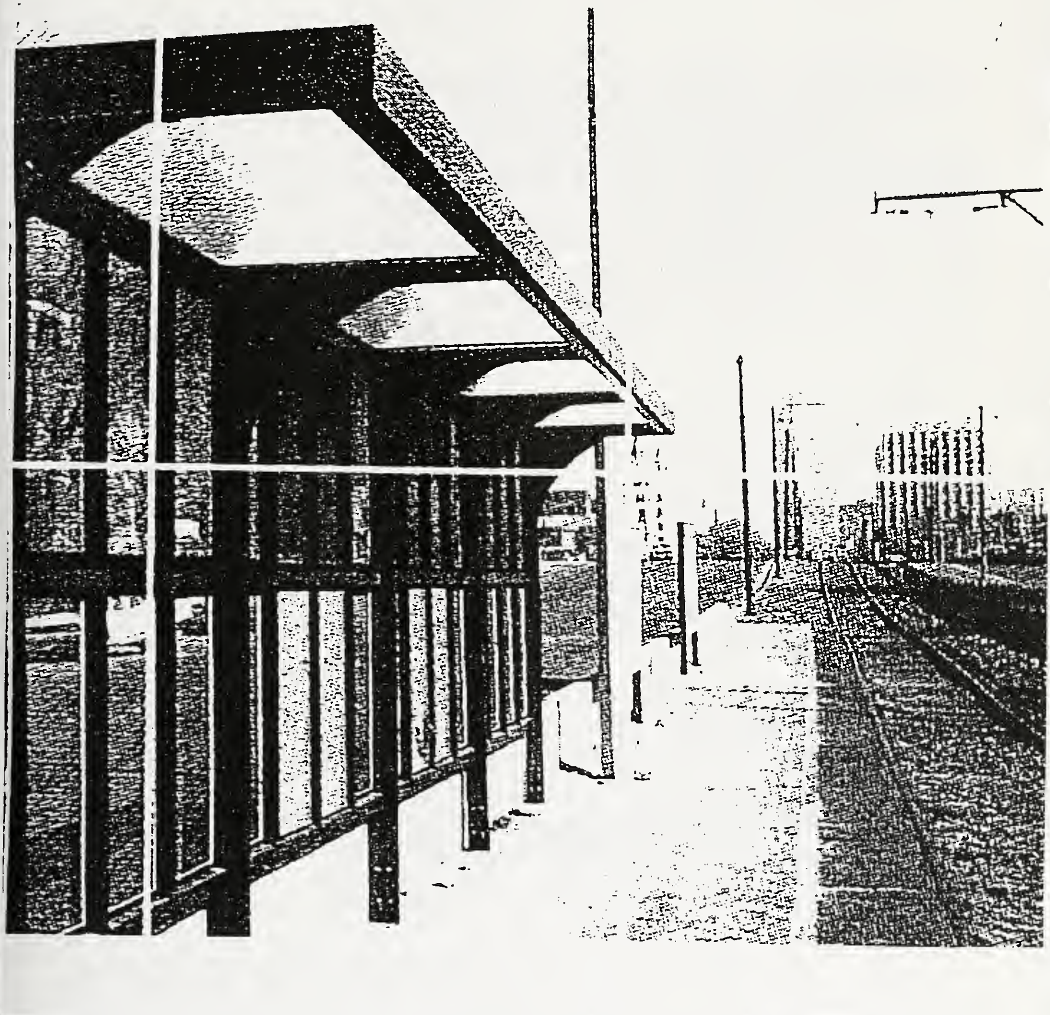
Figure 2-21



Landscaping Detail - Sherborn Street

Prepared By:
Cannon

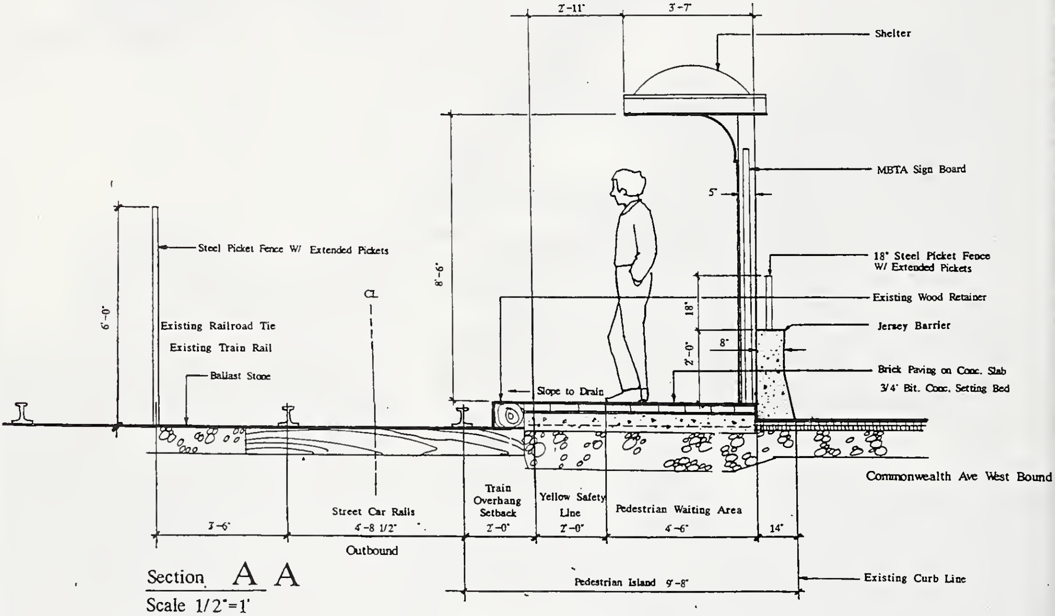
Figure 2-22



MBTA Shelter Concept

Prepared By:
Cannon

Figure 2-23



Section A A
Scale 1/2"=1'

M B T A STOP/SHELTER BLANDFORD STREET
Proposed Conditions

MBTA Shelter Concept - Cross Section

Prepared By:
Cannon

Figure 2-24

will occur at 9:00 AM, noon, and 5:00 PM, with a reduced flow throughout the day and into evening hours. In order that this entrance not compete or conflict with the principal entrance, it will be appropriately located on Sherborn Street.

Vehicular Access

The Project provides limited subsurface parking for employees, students, and building visitors. The entrance to the parking garage is located at the eastern corner of the building, on Commonwealth Avenue, thus avoiding conflict with the Sherborn Street intersection and traffic signal. Commonwealth Avenue is a divided roadway in front of the new building. Since traffic is westbound along that portion of Commonwealth Avenue, vehicles parking in the building will be able to enter and exit prior to reaching the major pedestrian crossing at Sherborn Street and the MBTA bus and trolley stops farther to the west. This design reduces potential conflicts between vehicles and pedestrians and minimizes disruption of traffic flow. Cars are able to enter and exit the parking facility without significantly disrupting traffic flow.

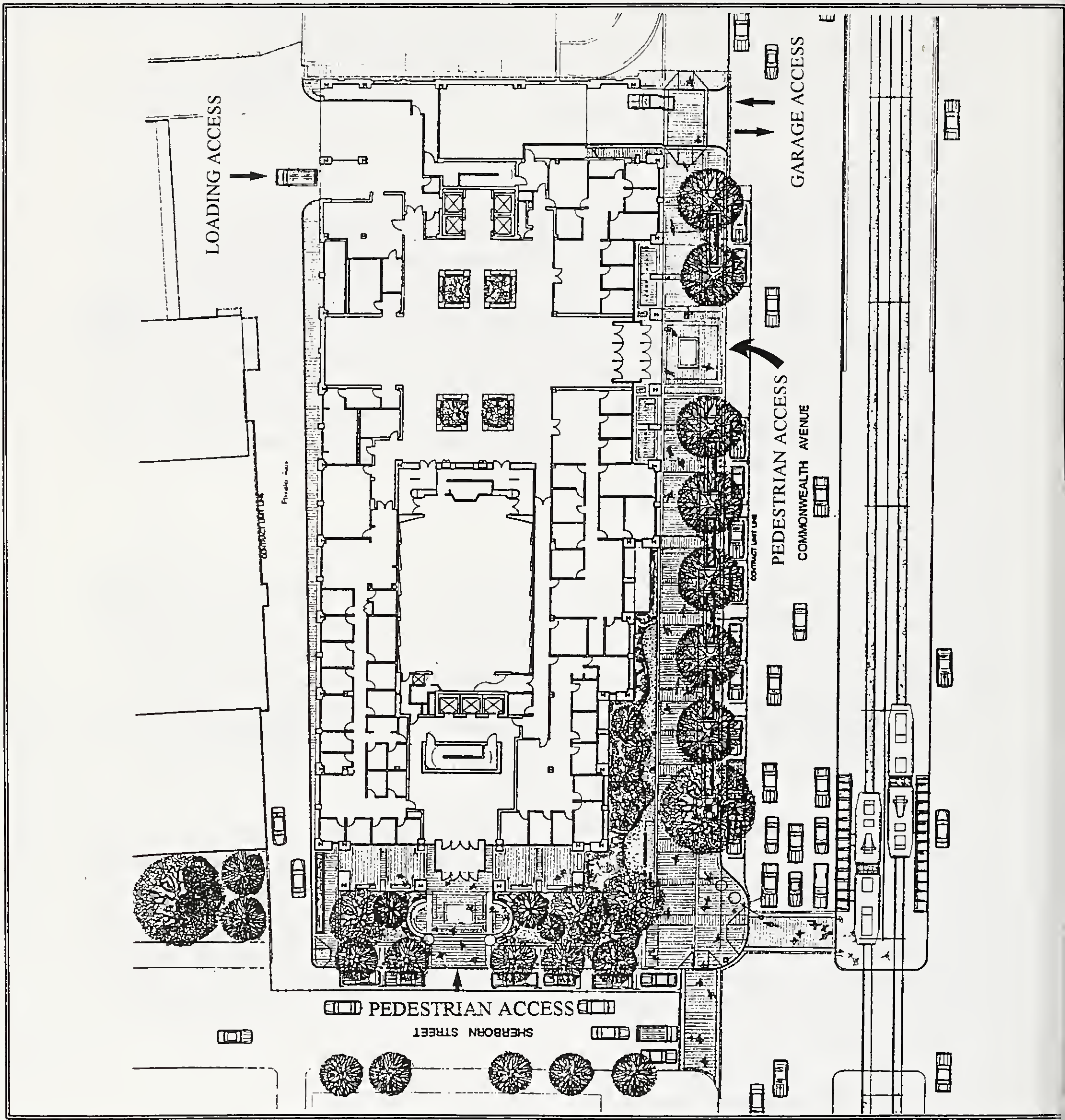
Service Access

The Project site is bounded by an alley on the north, which connects to Sherborn and Deerfield Streets. The building provides loading docks from the alley where trucks can park without blocking the alley. The loading docks are located off the alley in such a way that they will not impede alley circulation. Currently, the Boston University dormitory and other residential properties are served by this alley. Actual loading and deliveries will be through three loading bays, one of which is for a dumpster, in the rear of the building away from pedestrian areas. These will be accessed from the alley and segregated from other access points to the building.

Service vehicles will be able to enter and exit the alley from either Deerfield or Sherborn Streets. Access points are shown in Figure 2-25. Because the Project predominantly contains classroom and related academic functions, it requires less supplies and generates fewer goods than typical commercial buildings. Therefore, the number of loading dock needed to adequately service this Project are less than might be required for other commercial buildings of a similar size. Furthermore, service and delivery activities for the Project can be coordinated with similar activities campus-wide allowing more flexibility in management of these activities than would typically be afforded with other buildings.

2.6 PROJECT ALTERNATIVES

As discussed earlier, the ten story project alternative was the original Project design presented in the Environmental Notification Form and Notice of Project Change. In response to issues raised during agency and public reviews, the preferred nine story reduced scale alternative was developed. The reduced scale alternative has already been described above. The ten story



Project Access

Prepared By:
Cannon

Figure 2-25

alternative is described below. For comparison purposes, two other alternatives are also presented in this section: the No-Build alternative which essentially maintains existing conditions; and an alternative which reflects the original B-4 zoning classification of the Project site. A height comparison of all Build alternatives is provided at the end of this Chapter in Figure 2-32.

2.6.1. TEN STORY ALTERNATIVE

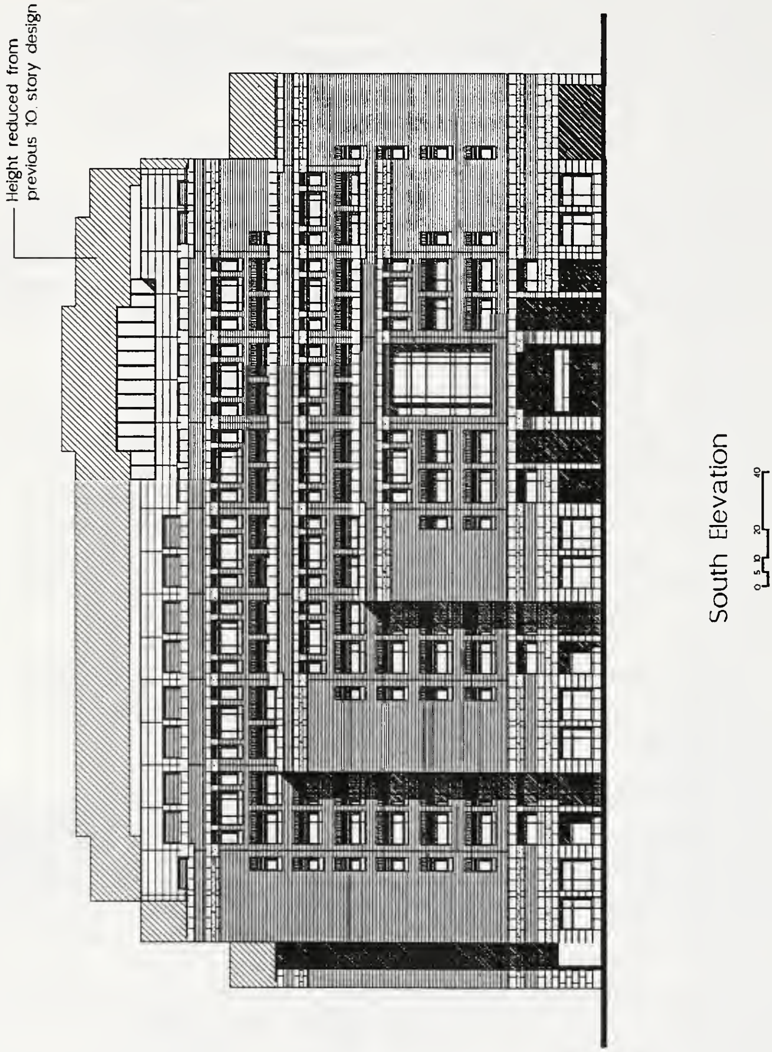
The new School of Management project was initially presented as a ten story project. The ten story building was approximately 11% larger than the preferred alternative containing approximately 366,000 square feet of gross floor area. This alternative was approximately 18 feet higher at approximately 184 feet, including a mechanical penthouse of approximately 23 feet. This alternative included four floors of executive administrative space and a mezzanine which have been eliminated in the preferred alternative.

The first six floors of the building contained the School of Management and the top four floors contained executive administrative space. The building materials and facade design are essentially the same for both the nine and ten story alternatives. The treatment of the Project site outside of the building is also essentially the same for both Project alternatives although the preferred alternative includes refinement of detail particularly on the north side of the building. As a result of the reduced height in the nine story preferred alternative, the fifth floor parapet now lines up with the Howard Johnson's Motor Lodge and the Boston University Bookstore Mall. The reduced height and massing configuration is shown in Figure 2-26.

Similar to the nine story project, the ten story building maintained the 38,000 square foot footprint and the 270 parking spaces in three levels below grade. Other comparisons of project alternatives are presented in Chapter 4.0, Historic Resources.

2.6.2 B-4 ZONING ALTERNATIVE

For comparison purposes, a conceptual building alternative reflecting the dimensional requirements of the B-4 zone has been provided. This alternative is not considered a feasible alternative for a number of reasons. The square footage allowed as-of-right in the B-4 zone cannot meet the Project program requirements for instructional space, administrative space, and/or parking. The B-4 zoning alternative necessitates the exclusion of a number of major elements from the total building program because approximately 122,500 gross square feet of the 321,700 gross square feet in the preferred alternative would need to be eliminated. The B-4 zoning requirements would eliminate of all 100,300 gross square feet executive administrative space on-site. In addition, the School of Management would lose approximately 22,200 gross square feet, a reduction of approximately 10% of the academic program space. It is not possible to identify exactly which School of Management facilities would need to be eliminated (case study rooms, classrooms, library space, lecture hall capacity, computer rooms, faculty and staff space) at this conceptual design level.



Nine and Ten Story Building Profile Overlay

Prepared By:
Cannon

Figure 2-26

The majority of parking, including replacement of existing spaces, would also have to be eliminated from the project program. Providing subsurface parking in a building roughly one-third smaller than the preferred alternative would require a different, more costly design. This element cannot, therefore, reasonably be supported by this alternative. As a result, the B-4 zoning alternative would result in the loss of the majority of existing parking spaces and could not provide sufficient spaces to serve the on-site uses. However, limited surface parking can be accommodated on-site. This loss is particularly undesirable since this end of the Boston University campus has experienced some loss of parking over recent years. Further loss of parking would contribute to the existing burden on neighborhoods and existing parking facilities in the area.

The B-4 zoning alternative is not consistent with the University planning activities which have taken place with the City of Boston and community groups over the last ten years. These planning efforts recognize the inappropriateness of the B-4 zone and accept uses and procedures which the University is pursuing through the preferred alternative. Project consistency with the University Master Plan, Cooperation Agreement, and zoning is further explained in Chapter 3.0, Zoning and Master Plan Consistency.

Project Concept

The B-4 zone allows a floor area ratio of four to one and 199,214 gross square feet of building area on the Project site. The Project site is also subject to various setback requirements at ground and parapet levels. This zoning classification has no specific height restriction.

The B-4 zoning alternative concept reflects the size and dimensional requirements of the B-4 zone but does not attempt to observe the use requirements. Therefore, commercial uses allowed by the B-4 classification were not used in developing the building concept. The Project program was maintained as much as possible in developing this alternative concept including University uses and parking.

The B-4 zoning alternative concept assumes the building would serve only School of Management and/or instructional activities as described earlier (i.e. classrooms, case study rooms, lecture hall). Therefore, the floor-to-ceiling heights serving the School are applied to all floors in the building. The mechanical penthouse for this alternative needs to be higher than the nine story alternative since the floorplate of the penthouse in this configuration is significantly smaller. However, it does not reflect the full height, an additional 11 feet, allowed under the applicable B-4 zone setbacks requirements.

The building size and height were determined by the square footage allowed and the size of the building footprint. The concept attempts to maintain floorplates which could accommodate the School of Management or other instructional uses within the limits of the setback requirements. Several scenarios were reviewed before selecting a reasonable configuration. A ten story building could provide a reasonable floorplate at ground level but, with the progressive parapet setbacks requirements, the upper floors were unreasonably narrow and/or small. This configuration would result in a building higher than the ten story alternative described above. An eight story building configuration resulted in a shorter building with larger floorplates but the setback formulas would necessarily contain irregular and very narrow floorplates at the ground and lower levels.

The result of the above assumptions and configuration exercises is a nine story building approximately 174-feet high containing approximately 199,200 gross square feet. The building footprint is approximately 27,500 square feet with upper floors stepping back in accordance with zoning requirements. This B-4 zoning alternative concept is shown in Figures 2-27 through 2-31. The site could accommodate approximately 38 surface parking spaces only, as opposed to the 270 spaces proposed and the 181 currently on site.

2.6.3 NO-BUILD ALTERNATIVE

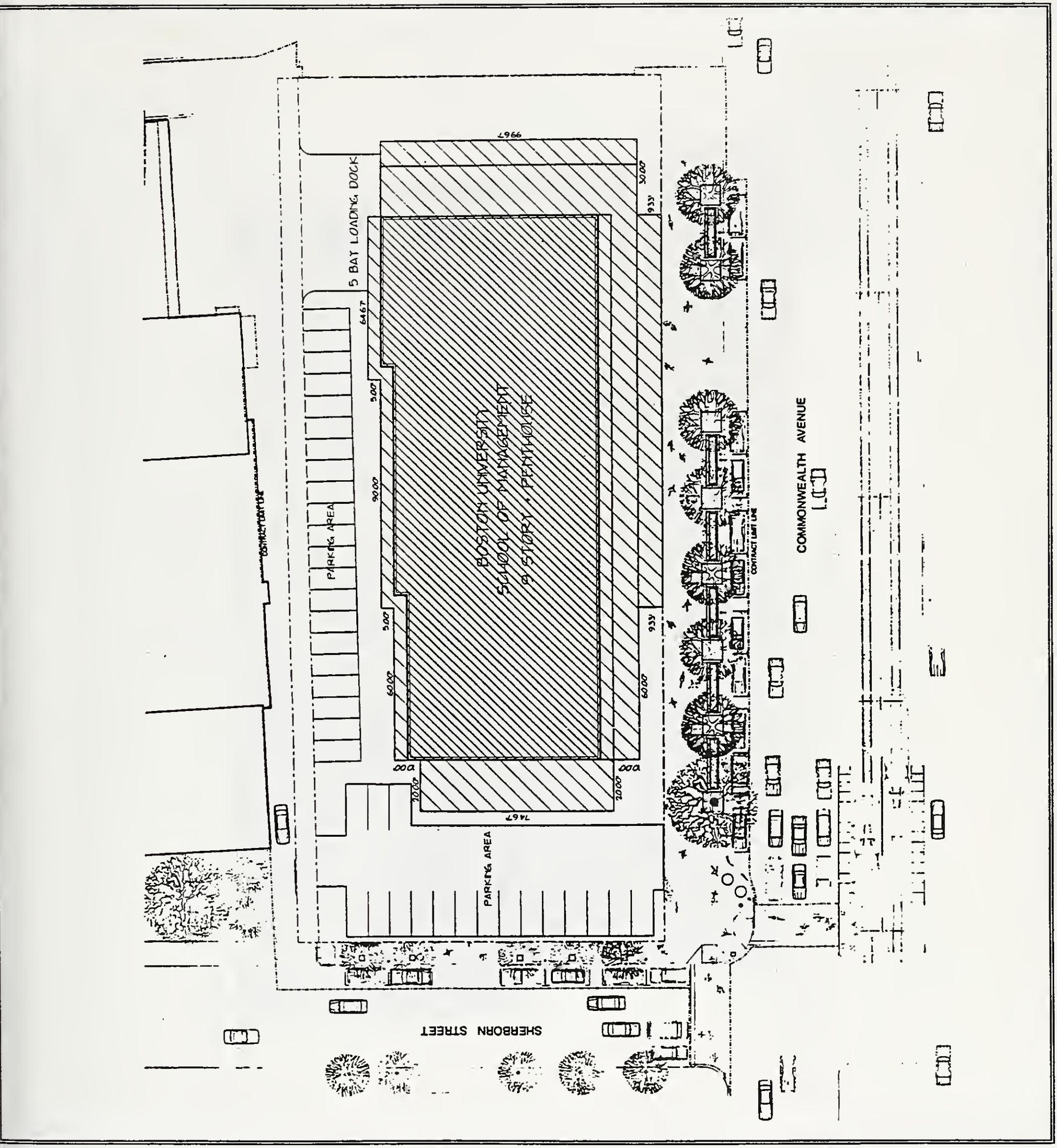
The No-Build alternative would maintain the existing condition. The current use as surface parking would be continued. The programmatic objectives of the University for a new School of Management and administrative space would not be met.

2.7 PROJECT BENEFITS TO COMMUNITY

The University already generates considerable revenues for the City of Boston and provides a multitude of services and benefits to Boston residents and employees. In 1992, the total economic impact of the University on the City was estimated to be $396.2 million. Over $2.8 million were generated in the form of fees, permits, taxes, and in-lieu-of-tax payments in 1992. The University provides municipal services in the form of street and MBTA stop maintenance, year-round police and security forces, public parking enforcement, and rubbish collection services.

Approximately 350 scholarships, worth $5 million, were awarded to Boston public high school graduates and teachers, City employees, graduates of local community colleges, and families of firefighters killed in the line of duty. The University directly and indirectly offers numerous educational, job training, health, legal, and cultural programs and services throughout the City. A more detailed description of the services and benefits Boston University provides the City is found in Section 1.6, Community Services and Benefits.

The Boston University new School of Management project will provide benefits to the neighborhood with improved street safety and urban design along Commonwealth Avenue. Economically, the current School of Management already provides many programs and services to businesses and residents of the City of Boston as described in Chapter 1.0, Project Summary. The new School of Management project will strengthen and improve the quality of these services and programs.

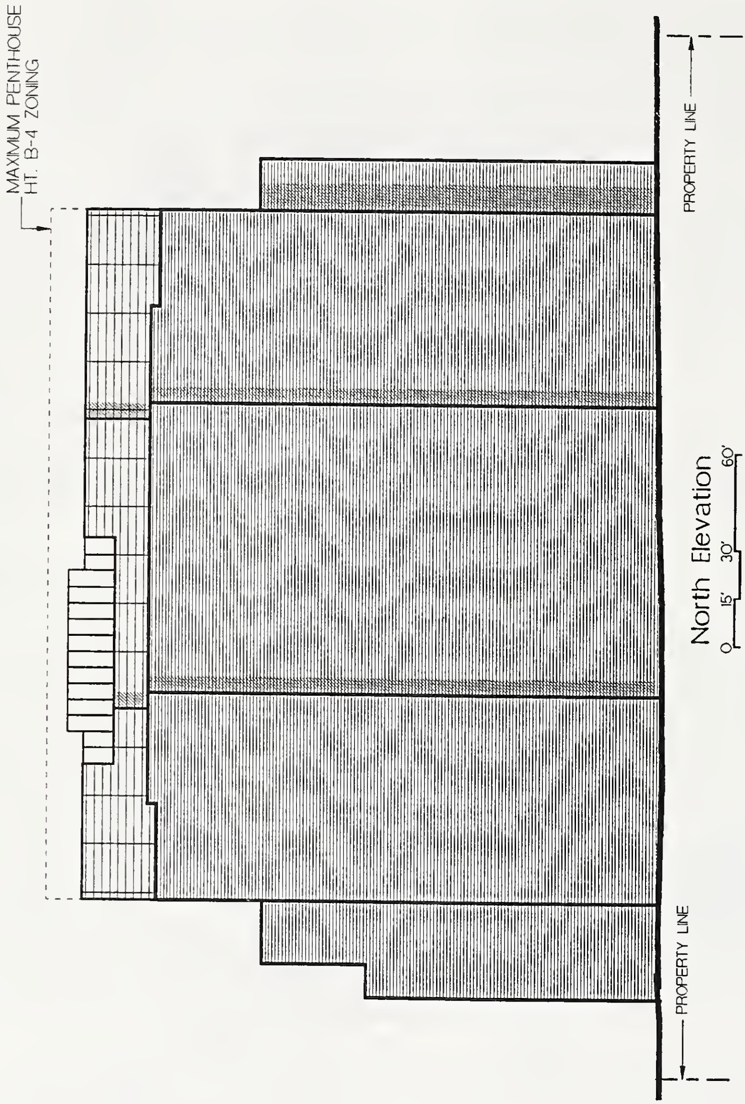


B-4 Zoning Alternative - Site Plan

Prepared By:

Cannon

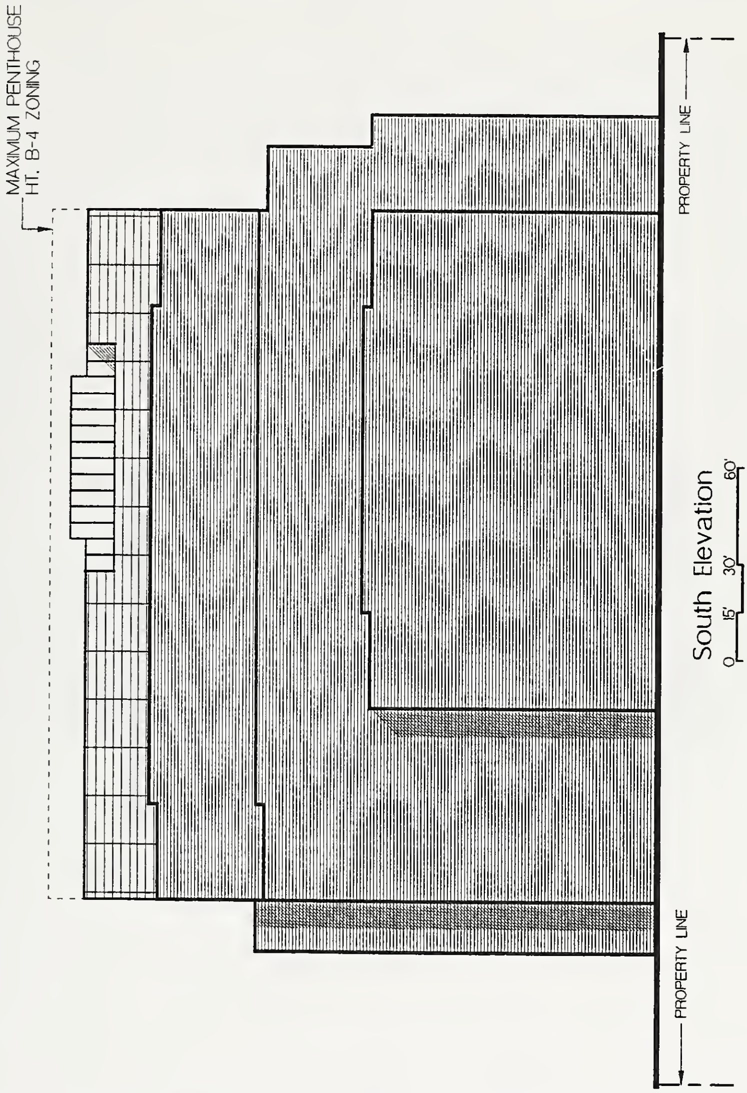
Figure 2-27



B-4 Zoning Alternative - North Elevation

Prepared By:
Cannon

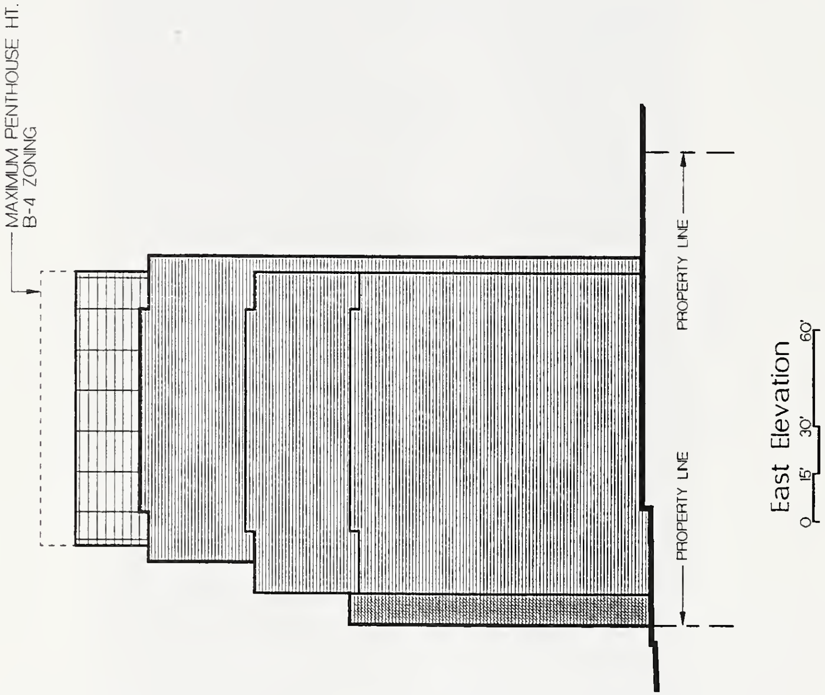
Figure 2-28



B-4 Zoning Alternative - South Elevation

Prepared By:
Cannon

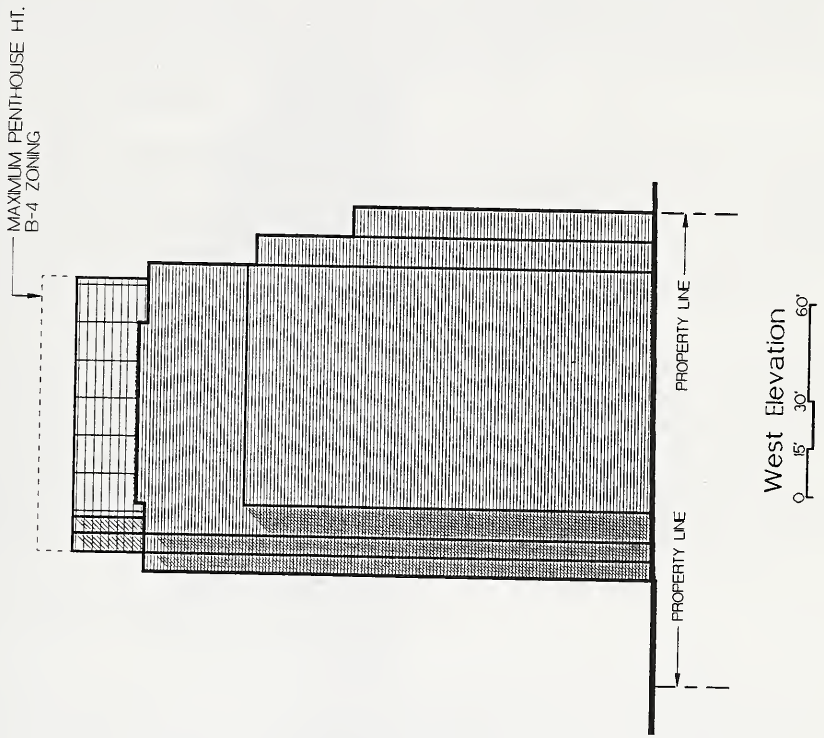
Figure 2-29



B-4 Zoning Alternative - East Elevation

Prepared By:
Cannon

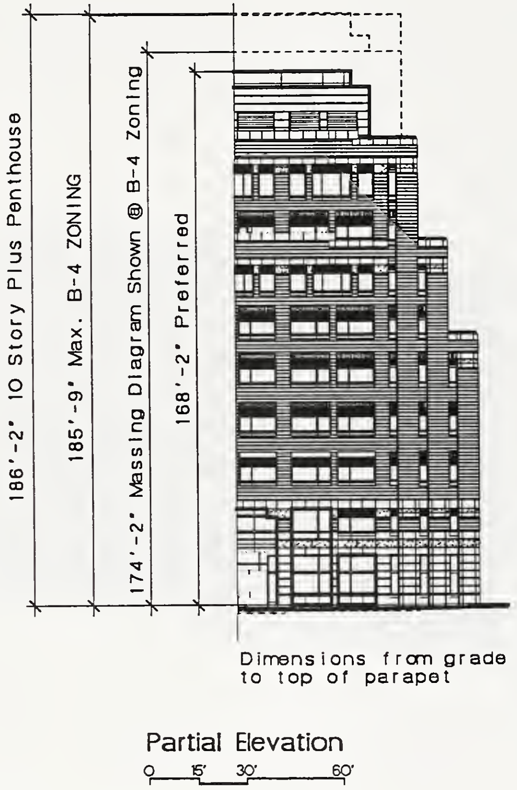
Figure 2-30



B-4 Zoning Alternative - West Elevation

Prepared By: Cannon

Figure 2-31


186'-2" 10 Story Plus Penthouse
185'-9" Max. B-4 ZONING
174'-2" Massing Diagram Shown @ B-4 Zoning
168'-2" Preferred
Dimensions from grade to top of parapet
Partial Elevation
0
15'
30'
60'

Build Alternatives - Massing

Prepared By:
Cannon

Figure 2-32

2.7.1 ECONOMIC

The Project will create approximately 300 construction jobs in the City of Boston over approximately a 28 month period. In accordance with Article 26B of the Boston Zoning Code, the Project will also generate approximately $221,700 for job training. Furthermore, the Project will generate over $1.1 million for the development of affordable housing in the City of Boston under Article 26A of the Boston Zoning Code. The Project will also provide new business for Kenmore Square businesses with the influx of students, employees, and visitors near the Square.

2.7.2 OTHER BENEFITS

The new School of Management project will improve the vitality of Commonwealth Avenue by filling an unsightly "gap" which currently exists along Commonwealth Avenue. The Project will create added green space and landscaping along Commonwealth Avenue and Sherborn Street and include new street furniture, sidewalk materials and other streetscape amenities. The University activities which will be located in this building are consistent with, and complementary to, business and academic activities which currently occur in the area.

Pedestrian safety will be improved through the Project by reducing from five to one the number of curbcuts along the block. Furthermore, the safety of pedestrian crossing movements will be improved through new crosswalks at Sherborn Street and Commonwealth Avenue, proposed neckdowns at the crosswalks and landscaping along the sidewalk which will discourage "jaywalking". The day and evening activities generated by the Project will also contribute to street safety. The Project includes substantial improvements to the Blandford Street MBTA stop in-bound and out-bound with shelters and safety barriers along Commonwealth Avenue.

2.8 PROJECT COSTS AND SCHEDULE

The cost to construct the new School of Management is estimated to be $75 million. Construction is scheduled to begin in late spring of 1994 and span a period of approximately 28 months. Completion of design review and any necessary zoning approvals is anticipated in the fall of 1993 in order to achieve the construction schedule.

3.0 ZONING AND MASTER PLAN CONSISTENCY

3.0 ZONING AND MASTER PLAN CONSISTENCY

3.1 INTRODUCTION

This chapter provides a discussion of the new School of Management project in the context of city planning and regulatory approvals. The two most useful tools for evaluating the Project are the approved Boston University Charles River Campus Master Plan 1986-1996 and the zoning provisions applicable to the Project. The Master Plan consistency analysis includes discussion of alternative locations and reuse of space vacated as a result of the Project.

3.2 MASTER PLAN

3.2.1 BACKGROUND

In 1980, Boston University entered into a Cooperation Agreement with the City of Boston which articulated the University's desire to consolidate the academic core of the Charles River Campus. The Agreement established a development plan and tax program for the campus area and defined a growth corridor for the campus. Following a series of discussions between the City and the University during 1984 and 1985, the University embarked on the preparation of a "Master Plan" which addressed housing, parking, academic facility, and athletic program needs based on student enrollment projections through 1995. This document was developed through a comprehensive process which involved the BRA and other City officials; University representatives; and the Boston University Task Force including twenty-five community groups from Boston, Allston, Brighton, and Brookline. A major feature of this plan, published and approved in February 1987 with the endorsement of the Task Force, was the identification of sites within the Charles River Campus which could accommodate identified needs of the University. The Master Plan is not an inflexible tool or rigid program for the future; it is an advisory document which offers the University's vision and anticipated long-term needs while responding to neighborhood concerns and to City policies and goals for the area. It is a document which reflects a sharing of ideas and general consensus about what could happen between 1986-1996. At this time, it is anticipated that the Master Plan will be updated and renewed in 1996.

Objectives of the Master Plan

The relevant objectives of the Master Plan include the following:

- to create a unified campus with delineated areas for housing, academic and administrative uses;
- to reinforce the academic core of the campus by developing supportive academic and administrative uses at key central campus locations;

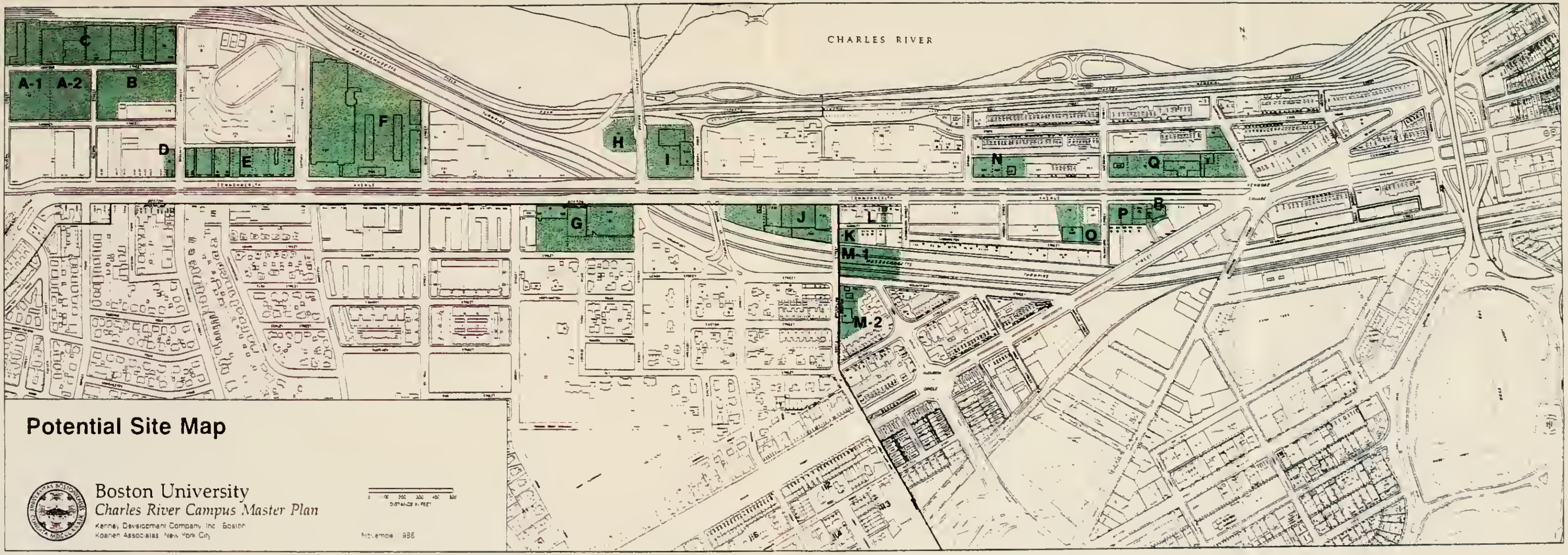
- to consolidate uses located in various locations throughout campus into single locations and thereby maximize campus space and minimize the need to spread into other areas; and
- to recognize the impact of new development near the campus edge with a view to minimizing adverse impacts on adjacent uses.

Among the major potential sites identified for future acquisition and development by the University was the block along the north side of Commonwealth Avenue bounded by Sherborn Street on the west and Kenmore Square on the east, and which extends along Deerfield Street to Bay State Road on the north. At the time of the Master Plan, the five properties comprising this tract, including two parcels owned by the University, two owned by Robert Sage, Inc., and one by Texaco, Inc., were designated as Parcel Q in the Master Plan (see Potential Site Map on the following page). Since the issuance of the Master Plan, the University has completed the assemblage of the entire tract, acquiring the gasoline service station from Texaco (removed and paved for parking) and, most recently, the Howard Johnson's Motor Lodge and associated surface parking lot on Deerfield Street.

The Master Plan proposed that Parcel Q be developed by the University for a mix of academic, commercial, and residential uses. Specifically, the plan recommended the consolidation of the School of Management (currently dispersed among several buildings throughout the campus) and development of a conference center at the site. For commercial development, the plan contemplated several ideas including expansion of the existing hotel facilities (to support the conference center) and a mix of private office, retail, residential uses, and open space.

The Master Plan noted that Parcel Q is an important site, not only in terms of its role for the University in accommodating future growth, but also because of its adjacency to Kenmore Square. The site has the potential to have a positive impact on the Square by serving as a transition between the commercial uses which characterize Kenmore Square and the academic environment of the University Campus. It is appropriate, therefore, that the Master Plan did not specify height, density or massing, but recommended that Parcel Q be designated a Planned Development Area (PDA) by the Boston Redevelopment Authority (BRA). This designation would afford the City the opportunity to fashion development guidelines unique to this property which respond to the specific needs of the University while respecting the community's concerns about the relationship of University expansion on this site to Kenmore Square and Bay State Road.

The assembly of Parcel Q has only recently been completed. The existing Howard Johnson's Motor Lodge has a long term lease and is anticipated to remain operating on the Parcel. Beyond this, there are no additional feasibility analyses or plans which further define the development of Parcel Q or indicate development which differs from the goals stated in the Master Plan. The



Potential Site Map

Boston University
Charles River Campus Master Plan
Kenney Development Company Inc. Boston
Koenen Associates New York City

November 1986

Master Plan recommends commercial development on Parcel Q. With the economy remaining uncertain, it is not possible to further define what that development will be for the remainder of Parcel Q. The BRA will be involved at the earliest possible time when the University is prepared to move forward. If possible, Parcel Q development will be further defined in the 1996 Master Plan.

3.2.2 MASTER PLAN CONSISTENCY

Background

During the Master Plan development process, it was recognized by all parties that the existing zoning classification was inadequate, outdated, and would not accommodate academic activities or the mix of uses and density of development brought forth in the Plan. It was recognized in the Master Plan that the appropriate means to review new development projects would be through the PDA process. As a portion of Parcel Q, it is appropriate that the Project go through the PDA review process.

The BRA Board has reviewed the Project PDA plan and found the new School of Management project consistent with the Master Plan and the general plan for the City of Boston. The BRA Board voted unanimously on approval of the Project on June 24, 1993. The Boston Zoning Commission unanimously approved the PDA on August 18, 1993. Consistency with the Master Plan and Cooperation Agreement is also supported by the Boston University Task Force vote of approval of the ten story project alternative (see Chapter 1.0, Project Summary for approval process).

The University has proceeded with consolidating the ownership of Parcel Q, but has not developed plans for the remainder of Parcel Q beyond what is already stated in the Master Plan. At this time, the University has specified plans only for that portion of Parcel Q that is being proposed for the new School of Management site, representing approximately 35% of the total Parcel. With this site, there are enough available resources to allow the University to address urgent needs to upgrade academic facilities in an optimum location -- walking distance to most of the campus -- while remaining consistent with the Master Plan. When development concepts can be defined for the remainder of Parcel Q, the University will work closely with the BRA to do so. In the meantime, existing uses will remain in place on the balance of the Parcel and concepts stated in the Master Plan for Parcel Q -- academic, commercial office, retail, residential, expanded hotel and conference, and open space -- remain appropriate guidelines.

Size

The Master Plan did not discuss specific program allotments for potential development sites. It did, however, mention that the new School of Management was estimated to be 120,000 square feet. Today, the School of Management occupies approximately 90,000 assignable square feet[1] (approximately 126,000 gross square feet). The 120,000 square feet suggested in the Master Plan represent an expected increase of 30,000 assignable square feet. The new School of Management, housed in floors one through six of the Project, contains approximately 126,000 assignable square feet (approximately 221,400 gross square feet). The Project therefore proposes a modest 6,000 square foot increase in assignable space over the original 1986 estimate and is therefore, consistent with the Master Plan.

As previously mentioned, Parcel Q is an important site because of its role on the campus in accommodating future growth and its close proximity to Kenmore Square. The site offers the potential to create a positive impact by serving as a transition between the commercial uses which characterize Kenmore Square and the academic environment of the University campus. The Master Plan did not specify height, density or massing for Parcel Q, but recommended it be treated in a unique manner apart from the original B-4 zoning through the PDA process. In accordance with the Master Plan, this approval process has been used to determine size and use of the parcel.

Use

The University's approach to the development of Parcel Q and the new School of Management project has remained consistent with the 1987 Master Plan and the Cooperation Agreement. The Project designates academic uses for the site which are appropriate and consistent with concerns and goals expressed in these documents.

The Master Plan proposed that Parcel Q be developed by the University for a mix of academic, commercial, and residential uses. Specifically, the plan recommended the consolidation of the School of Management (currently dispersed among several buildings throughout the campus) and development of a conference center at the site. For commercial development, the plan contemplated several ideas including expansion of the existing hotel facilities (to support the conference facilities) and a mix of private office, retail, residential uses, and open space. The Master Plan further contemplates locating a consolidated School of Management on the western portion of Parcel Q. The School of Management project, therefore, is appropriately located on the western portion of the development parcel.

The Master Plan does not specifically address University administrative needs in terms of space sizes, locations or functions (other than those specifically related to student services). Currently, administrative space is integrated into existing academic space throughout campus wherever it does not interfere with other program needs. Similarly, it is integrated into new academic space wherever it does not conflict with other program needs such as in the School of Management building.

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[1] Assignable square feet is defined in the "Revised Higher Education Facilities Inventory and Classification Manual", March 1991, published by the National Center for Education Statistics. It reflects all areas specifically assigned. For example, classrooms, offices, administrative and program space, library, auditorium, canteen/kitchen, meeting rooms would be assignable. Common areas such as halls, stairwells, maintenance, mechanical and structural space would not be assignable.

In addition to discussing uses on potential development parcels, the Master Plan also includes general goals and objectives for the Boston University campus. These goals and objectives reflect the desire to contain development within the existing campus and limit future expansion into adjacent neighborhoods. In order to remain consistent with these goals, the University needs to maximize the use of its available development sites. Hence, the new School of Management Project exemplifies efficient use of the Project site by "piggybacking" several operations into one building -- administrative, School of Management, executive education center, and underground parking. The alternative location analysis below (Section 3.2.5) demonstrates the limited availability of potential development sites on campus. This condition further contributes to the need for the University to maximize efficiency of site use when the opportunities are available.

Although other sites were considered for short-term upgrading and consolidation of executive administrative space, Parcel Q is considered the most suitable and available (see Section 3.2.5 below). The need to upgrade and consolidate administrative space on campus has become acute. Although the Project itself offers a step toward addressing this need, only a portion of administrative space is accommodated by the Project. Combining executive administrative and academic space on Parcel Q will facilitate regular interface of executive administrative personnel with faculty and staff of the School of Management. This makes combination of executive administration with school activities on this site desirable. Compared to some of the existing administrative facilities on campus, the new Project will provide greatly improved quarters capable of accommodating the computer systems and other equipment common to the modern office. Thus, the Project generally reflects an upgrade of facilities on campus, rather than an expansion of those facilities. A more detailed discussion of new and vacated space utilization may be found in the sections following.

In conclusion, the University needs to retain availability of parcels identified in the Master Plan for other uses identified, develop within the campus limits through maximizing use of land, and upgrade facilities when the opportunity is presented. While administrative functions and School of Management functions might not be totally dependent on each other internally, it is a desirable mix. The integration of executive administrative space into the School of Management project is a good example of how the University intends to carry out the full goals of the Master Plan, in addition to the ideas stated specifically for Parcel Q.

3.2.3 VACATED AND NEW SPACE ON CAMPUS

For most of this document, the Project is described in gross square feet, in accordance with the zoning code determination. Academic space in most higher education facilities, however, is normally described in terms of assignable square feet. In this section, "assignable square feet" is nomenclature employed to provide a consistent and useful method of discussing space utilization on campus and is roughly comparable to "net rentable square feet" in the real estate industry. Assignable square feet represents space which is actually used by a function or department and excludes common areas, maintenance areas, and mechanical space.

Section 3.2.4 provides a description of how space which is vacated as a result of the Project will be reused for the upgrade of existing programs and for new research programs.

Vacated and New School of Management Space

The Boston University School of Management currently occupies approximately 90,000 assignable square feet. The new School of Management will occupy approximately 126,000 assignable square feet. As described in previous chapters, this reflects state-of-the-art classrooms, case study rooms, break-out rooms, computer facilities, a new lecture hall, new library, executive education center, canteen and supporting kitchen facilities, and upgraded faculty and supporting administrative offices. Management school teaching techniques have changed radically since the current facilities were constructed 60 years ago. Contemporary teaching techniques and curriculum require large floor to ceiling heights to accommodate case study rooms and new expanded library, lecture hall, and computer facilities.

The new School of Management design includes a new executive education center in addition to upgrading academic and office space standards. This accounts for the addition of approximately 6,000 assignable square feet over the original 120,000 square foot estimate in the Master Plan. The Project does not reflect a significant increase in the enrollment at the School of Management. Additional discussion of School of Management program needs and techniques is found in Chapter 1.0, Project Summary and Chapter 2.0, Project Description. The vacated and new space associated with the School of Management component of the Project remains the same for both the nine and ten story alternatives.

Vacated and New Executive Administrative Space

The executive administrative space located in the nine story project alternative will relocate offices now occupying approximately 36,000 assignable square feet. The Project is estimated to provide approximately 59,000 assignable square feet. This reflects upgraded office space and includes a new Board of Trustees meeting facility. Under the ten story alternative, occupants of approximately 59,000 assignable square feet of existing administrative space would have been relocated into approximately 80,000 assignable square feet in the Project. The nine story project reduces the amount of existing administrative space to be vacated by approximately 23,000 assignable square feet and reduces new executive administrative space by approximately 21,000 assignable square feet. A summary of the comparison is found in Tables 3-1 and 3-2.

Table 3-1
New Assignable Square Feet

	Nine Story Building	Ten Story Building	Reduction
School of Management	126,000	126,000	0
Administration	59,000	80,000	21,000

Table 3-2
Vacated Assignable Square Feet

	Nine Story Building	Ten Story Building	Reduction
School of Management	90,000	90,000	0
Administration	36,000	59,000	23,000

3.2.4 REUSE OF VACATED SPACE

The space vacated by the School of Management project will be utilized in a variety of ways including upgrading and expanding the existing uses and special programs identified below. Table 3-3 provides a summary of vacated space and anticipated reuse programming.

School of Management Space

The existing School of Management is currently spread out in six locations along Commonwealth Avenue. The spaces to be vacated range in size from approximately 300 to 44,000 assignable square feet. This space includes approximately 18 classrooms, and over 125 faculty and support offices. The vacated classroom space will be reallocated for ten general use classrooms. The existing School of Management library space will be used for expanded shelf space of the main library. Some of the office space will remain and be upgraded for other faculty. In accordance with the Master Plan, the building at 704 Commonwealth Avenue, which contains approximately 17,000 assignable square feet, is slated for a feasibility study for re-use as dormitory space.

It is anticipated that approximately 28,000 assignable square feet of vacated space currently part of the School of Management will accommodate new laboratory and other programs which could generate up to 28 new jobs on campus. Other academic departments are planned to relocate into a portion of the vacated space from the School of Management. The second generation space vacated by these two programs, approximately 21,000 assignable square feet, will be used for reallocation and upgrading of student program space and expansion of the Science Library. These are not new uses and are not anticipated to generate new jobs. The reuse of School of Management space remains the same for both the nine and ten story alternatives.

Table 3-3

Summary of Anticipated Space Reuse for Preferred Alternative (Nine Story)

LOCATION	*SQUARE FEET (ROUNDED)*	*PROPOSED USE*	*NEW EMPLOYMENT POTENTIAL*
SCHOOL OF MANAGEMENT			
685 Commonwealth Ave.	44,000	General Class/Office/Lab	8
		Relocate Academic Department (1)	0
621 Commonwealth Ave.	13,000	Relocate administrative offices	
		New programs (2)	20
704 Commonwealth Ave.	17,000	Study reuse as dormitory	0
771 Commonwealth Ave.	15,000	Expand library shelf space	0
730 Commonwealth Ave.	300	Upgrade existing uses	0
985 Commonwealth Ave.	700	Upgrade existing uses	0
Total for School	***90,000***		***28***
ADMINISTRATION			
147 Bay State Road	8,000	Special Program	25
145 Bay State Road	7,000	Special Program	20
59 Bay State Road	1,000	Upgrade existing uses	0
881 Commonwealth Ave./ 25 Buick St.	12,000	Upgrade existing uses	0
		Relocation of administrative offices (3)	0
10 Lenox St./25 Buick St./143 Bay State Road	8,000	Upgrade existing uses	0
		Special Program	15
Total Administration	***36,000***		***60***
Second Generation Moves			
(1) 111 Cummington St.	19,000	Science Library	0
(2) 775 Commonwealth Ave.	2,000	Expand student program space	0
(3) 985 Commonwealth Ave.	7,000	Unassigned	25
Total Second Generation	***28,000***		***25***
GRAND TOTAL	***154,000***		***113***

Executive Administrative Space

As shown in Table 3-3, approximately 36,000 assignable square feet of administrative space will be vacated as a result of the Project. This space is currently distributed among six locations on Bay Sate Road, Commonwealth Avenue, and Buick Street. These spaces range in size from approximately 1,000 assignable square feet to 12,000 assignable square feet. It is anticipated that in three of these locations, either existing or new special programs will be assigned. These will be located largely in the desirable offices along Bay State Road. Special programs tend to be small research centers or institutes which focus on very narrow fields. They typically contain offices for limited numbers of full-time faculty, one or two visiting faculty, space for graduate work, and small seminar rooms. Examples of existing special programs on Bay State Road include the Center for Educational Development in Health and Center for Defense Journalism. It is estimated that if the vacated space in these three locations is filled with new programs, up to 60 new jobs could be created when these spaces are vacated.

The majority of vacated administrative space will be used to upgrade and expand the accommodations of the existing administrative occupants. A portion of the space will be used to relocate student services offices. The second generation of space vacated as a result of the project administrative space is comprised of approximately 7,000 assignable square feet. This space is currently unassigned but is anticipated to be available for added offices which could potentially generate up to 25 new jobs on campus.

The ten story alternative would have vacated approximately 23,000 assignable square feet more than the nine story project. This would have been used for further upgrading of existing offices and would have allowed an upgrade of other program offices which was estimated to generate six new jobs.

3.2.5 ALTERNATIVE LOCATIONS

Alternative sites were considered prior to selecting Parcel Q for development of the new School of Management project. The approved Master Plan was used as the guiding document in selecting and evaluating alternative sites because it represents a comprehensive analysis and participatory process. The Plan involved the review of twenty sites on the Charles River Campus and all aspects of University needs including housing, recreation, parking, instructional and other academic activities. The Plan also reflects the concerns of communities in Boston, Brookline and Allston/Brighton through the active involvement of numerous community groups and officials throughout the Master Plan process. Planning activities with City of Boston officials and neighborhood groups subsequent to the Master Plan are also taken into consideration in evaluation of alternative sites.

There are other important factors regarding development of sites on campus. The Charles River Campus is a narrow urban campus which requires maximization of existing properties within that corridor to minimize spreading to adjacent neighborhoods and/or creating undesirable impacts in these neighborhoods.

The alternative sites selected for discussion reflect a combination of uses identified in the Master Plan, subsequent planning activities with the officials and community groups, University program needs, physical conditions, and regulatory restrictions. Questions raised by officials during the planning and approval process for this Project were also taken into consideration in the selection of alternative sites discussed in this section. See Figure 3-1 for alternative site locations.

The following is a summary of the parameters used to select and evaluate alternative sites for the Project.

- Master Plan Consistency: To be consistent with the Master Plan, site selection must consider all University program needs. It might be possible for the Project to be located on other sites, but this would then compromise other program needs which are better accommodated by their proposed locations. The Master Plan and Cooperation Agreement identify a desirable growth corridor for Boston University development. Therefore, no sites outside of the Campus corridor are considered.

- Ownership: Only property currently under University control was considered for site selection. No new land acquisition or use of air rights was considered for the selection of alternative sites in this analysis.

- Distance from related activities: The University attempts to cluster related class and other activities within a 10-minute walk or roughly 2,500 feet. This accommodates the typical break time between classes and is considered a reasonable and safe distance for students to travel between classes. Sites within the core campus area, between the Boston University Bridge and Kenmore Square, are considered the most desirable for academic activities.

- Program Needs: The alternative site must be evaluated for its ability to accommodate the School of Management program needs and goals in terms of size and characteristics. Likewise, the alternative sites are evaluated in terms of ability to accommodate other University program needs.

Alternative Sites

Parcel F

Parcel F, also known as the Armory site, is located on the west end of campus at the northwest corner of Buick Street and Commonwealth Avenue. The site is approximately 10.2 acres in size and contains the Armory and other small buildings. This site is also used for parking. A tremendous amount of planning and design have already been applied to the site for mixed recreational/athletic facilities, housing, parking, and commercial/retail activities. Academic space was limited to a maximum of 100,000 square feet.

Parcel F has already undergone extensive planning which involved over thirty meetings with local officials and community groups. It has also received a Certificate on the Final Environmental Impact Report from the Secretary of Environmental Affairs in July, 1990. Locating the new School of Management project on Parcel F would be inconsistent with all local planning activities and state approvals to date for the site. Furthermore, location of the new School of Management project to this site would situate it outside the campus core and eliminate the potential for future complimentary conference and hotel activities available on Parcel Q.

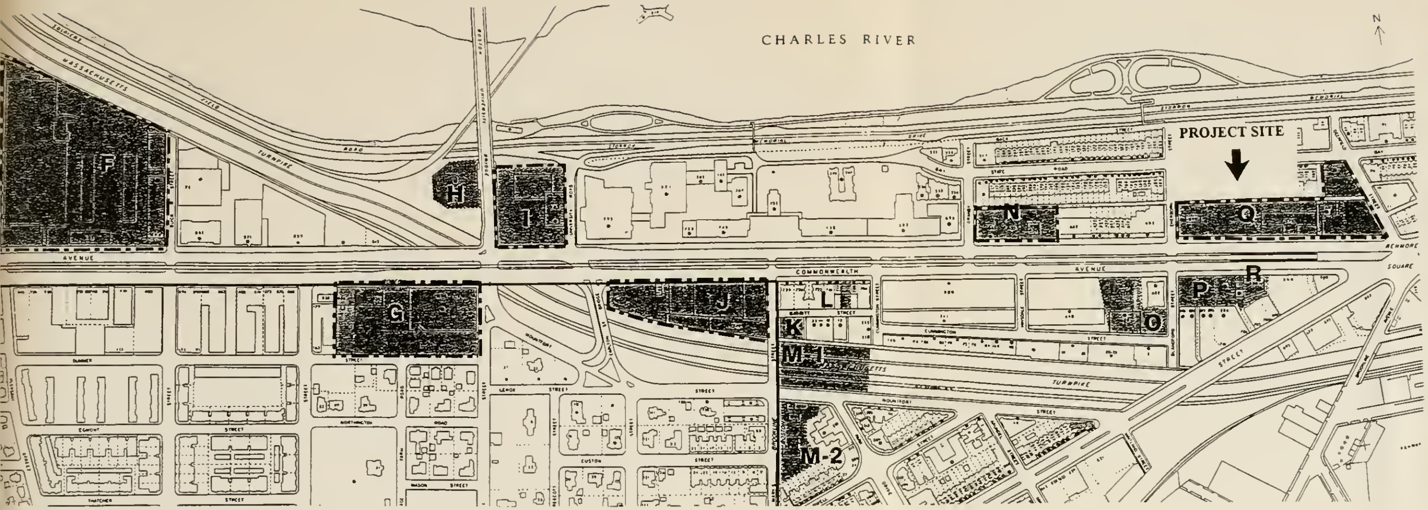
Parcel G

Parcel G, also known as the Fuller Cadillac site, is centrally located on campus at the southwest corner of Mountfort Street and Commonwealth Avenue across from the Boston University Bridge. The site is approximately 3.8 acres in size and includes a 250,000 square foot building and a smaller building. It is currently used for limited academic activity and University storage.

Through the Master Plan process, this site and buildings have been identified as the only place on campus suitable for the development of a University and community arts complex. The larger site is considered well-suited for rehabilitation and development to performing arts studio space such as dance, theater, and music hall. Because of low ceiling heights and other factors, it is not feasible to rehabilitate the existing buildings to accommodate the School of Management Program. To locate the School of Management project here, therefore, would require demolition of existing structures. The plans for Parcel G include the relocation and development of the School for the Arts, a performing arts center, and gallery space which can serve the community as well as the University. Relocating the new School of Management project to this site would eliminate the opportunity for the arts complex on campus. Furthermore, the potential for the School of Management to capitalize on compatible uses with the hotel and potential conference facilities available on Parcel Q would be lost.

Parcel I

Parcel I is located at the northeast corner of the Boston University Bridge and Commonwealth Avenue. The site is approximately 90,000 square feet of land and contains a building used for recreational activities, academic activities, and student services. There is also parking on the site. Parcel I is central to most activities on campus and adjacent to the student union. The Master Plan identifies this site as ideal for consolidation and strengthening of student services and related administration, such as academic and career counseling, and other activities which enhance the existing student union facilities. In order to put the Project on this site, existing uses would need to be relocated and the building would have to be demolished.



BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

Alternative Site Locations

Figure 3-1

Prepared By:
Pressley Associates Inc.

January 1994

Also, this location would put the Project building closer to the Charles River and immediately adjacent to the Charles River Basin Historic District.

This site is currently used for key academic activities and is not available for development. Furthermore, future development of this site is linked to the development of the Armory site (Parcel F). Parcel I cannot be developed until the Armory project is moved forward which will allow existing recreational and parking uses on Parcel I to be relocated to Parcel F.

Parcel J

Parcel J, 730-766 Commonwealth Avenue, is located on the south side of the street near the Boston University Bridge in Brookline. It is approximately 89,500 square feet in size and contains approximately 68,500 square feet of commercial space in four buildings. The buildings are currently under private ownership and under long-term lease to the University. Until such time as the parcels can be acquired, development proposals cannot be realistically entertained for the site. Being located in the heart of the core campus, the site is considered particularly desirable for a new library and other major academic facilities.

Parcel N

Parcel N, 645-665 Commonwealth Avenue, is located on the north side of the street within the core of the campus. It is approximately 32,000 square feet in size and contains a parking lot and fast food restaurant (Burger King). The fast food restaurant portion of the parcel is not under University ownership and not anticipated to be available for development in the near future. The Master Plan has identified this site for future relocation and upgrade of the School of Communication and other academic uses and parking. In order to facilitate cost-effective development of facilities, it is considered necessary to develop the two sites together as one parcel. Until such time as the parcels can be acquired, development proposals cannot be realistically entertained for the site.

Parcel Q

Parcel Q is located on the eastern edge of Campus along Commonwealth Avenue from Sherborn to Deerfield Street. The site is approximately 3.1 acres in size and contains a Howard Johnson's Motor Lodge, another small commercial building and surface parking lots.

The site is considered a gateway to the Campus from the east. As it abuts the Kenmore Square commercial area, Parcel Q is considered suitable for a mix of academic, conference, and commercial uses. The existing hotel is considered an asset to the site which can be incorporated into the development program of the parcel. Parcel Q was identified as the proposed location for the School of Management.

The academic activities are located on the west end of the Parcel which locate them closer to other academic activities. This leaves the east end of the parcel available for commercial activities which are complimentary to Kenmore Square businesses and which do not necessarily need to be close to other campus activities. The Project is proposed for the western third of the Parcel which is available now and requires little preparation for development.

Alternative Site Conclusion

While there are a number of locations within the Boston University campus which are planned for development, Parcel Q is considered the best location for the new School of Management project. It is under University ownership, and available for development in a timely and cost-effective manner, consistent with the Master Plan and planning efforts, and in compliance with local and state approvals. Locating the new School of Management project on the alternative sites mentioned above would neither be consistent with these approvals nor with the Master Plan. It would also seriously compromise other University program needs and goals. Furthermore, other sites could not easily capitalize on the use of the Howard Johnson's Motor Lodge hotel for conference activities.

3.3 ZONING

The following section discusses the original city zoning for the Project site, how it differs from the Project uses and design, and why it is not appropriate or feasible for the University to build the new School of Management project on the site without significant zoning changes and exceptions. As explained below, the B-4 zoning classification will not allow development of the site consistent with the Master Plan and other City planning activities and is therefore regarded the same as the No-Build alternative.

3.3.1 BACKGROUND

The B-4 zoning district was applied to the Project site several decades ago. Starting in the 1930s, Boston University established the main campus in the area which now surrounds the Project site (see Chapter 1.0, Project Summary for a brief history of the Charles River Campus). In recent years, the City of Boston has been systematically updating zoning classifications throughout the city and recently re-zoned the west end of the campus through the Allston-Brighton planning and zoning process. The BRA is planning to focus on the east end of the Boston University campus in the near future.

The B-4 zone supports general business and commercial activities. The predominant use in the area, university use, is not permitted as-of-right in the B-4 zone. The B-4 zone for the Boston University Charles River campus was deemed unsuitable by both the University and City officials over ten years ago. Discussions between the University, City officials, and community groups on the future trends and goals for the Campus resulted in the 1980 Cooperation Agreement between the City and the University. This document supports and provides guidelines for the consolidation of activities on Campus including a development plan for activities not consistent with the B-4 zone. Subsequently, the 1986-1996 Master Plan for the Charles River Campus was also developed. (The Master Plan is further described above in section 3.2). The uses and goals described in the Master Plan clearly do not correspond with the B-4 zone but were recognized as appropriate and desirable in both the 1980 Cooperation Agreement and the Master Plan. Furthermore, the PDA process is identified as the appropriate zoning vehicle for proceeding with development on Campus. Additional procedures described for development include the University's voluntary participation in the Article 31 review process for major new projects on campus and establishment of a Boston University Task Force representing broad community interests.

3.3.2 B-4 ZONING

It is important to note that without significant changes in the zoning classification, it is not feasible for the University to develop the Project site in a way that is consistent with the Cooperation Agreement and/or the Master Plan. The B-4 zoning classification establishes a general business district which allows a FAR of 4.0. It also defines the B-4 zoning uses allowed, incidental and ancillary uses, setbacks, loading, and signage specifications. There is no height restriction included in the B-4 zone. This outdated zoning classification conflicts with the Master Plan and the program needs of the University in a number of ways including university academic uses, Floor Area Ratio (FAR), several setback requirements, loading dock requirements, and signage. These inconsistencies are detailed below in Section 3.3.3, Required Exceptions.

The B-4 zoning classification renders the School of Management project impossible as-of-right, because the use itself is not permitted. Further, the dimensional requirements make it both physically and financially infeasible to meet the Project needs. The B-4 zone, if strictly applied to the Project site, would allow close to 200,000 gross square feet (or approximately 110,000 assignable square feet) of building space with a floorplate size restricted by the loading and various setback requirements (see Chapter 2.0, Project Description for B-4 zoning alternative description). These restrictions would not accommodate either the ten story or the reduced nine story alternative program for the Project (366,000 square feet and 321,700 square feet respectively).

Even if the University gave up administrative and parking uses in the Project program, this zoning classification would still not accommodate the new School of Management project programmatically or physically as-of-right within the B-4 zone. The B-4 zone would not allow the 221,400 square feet required for the new School of Management space alone (or 120,000 assignable square feet identified in the Master Plan for the new School of Management). Since the purpose of the School of Management Project is to consolidate and upgrade the existing 40-year old facilities, facilitate new programs and teaching techniques (making the program competitive nationally), it does not make sense to embark on a multi-million dollar program that will not achieve these goals.

If the Project design could meet the outdated physical restrictions set forth in the B-4 zone, the Project would still not be allowed because college and university uses (and associated accessory and ancillary uses including parking) are not allowed as-of-right in this zoning classification. The University would, therefore, still be required to seek major zoning relief for the new School of Management project. For all the above reasons, the B-4 zoning classification is regarded the same as the No-Build alternative. This is also why the PDA process was identified as the appropriate zoning vehicle for development of the Project and why University has pursued this course of action.

3.3.3 REQUIRED EXCEPTIONS

As stated earlier in this document, the City of Boston has already granted key approvals of the Project including: Adequacy Determination on the DPIR and FPIR, BRA Board approval, Zoning Commission approval of the PDA, Mayoral approval of the PDA, and schematic design approval by the BRA. The University has received approval from the Boston Board of Appeal for the necessary exceptions. The following is a summary of major exceptions approved for the Project.

- Uses including colleges or universities granting degrees and libraries.
- Accessory and ancillary uses including food and beverage, and parking garage.
- Floor Area Ratio (Allowed 4.0/Requested 6.5).
- Side setback (Required 16.7 feet/Requested zero feet).
- Rear setbacks (Required 20 feet/Requested 8 feet).
- Parapet setbacks (various requirements).
- Signage - size and height off ground.
- Loading docks (Required 5/Requested 3).

3.4 CONCLUSION

Two key regulatory and planning tools were used to evaluate the new School of Management project: the Boston University Charles River Campus Master Plan 1986-1996 and the original B-4 zoning classification. The B-4 zoning was imposed on the site decades ago and has not been updated by the City since that time. However, the Cooperation Agreement and Master Plan reflect recent trends and a comprehensive review process which provide better guidelines for evaluation of the Project.

None of the build alternatives for the Project conform to the B-4 zoning. Even if the dimensional requirements could be met, the uses would still require conditional approvals at a minimum. Both the nine and ten story project alternatives are consistent with the Master Plan and have been approved by the Boston University Task Force. However, the nine story alternative provides a significant reduction in height and bulk and serves to mitigate potential visual impacts associated with the ten story alternative and is therefore the preferred alternative. Furthermore, the alternative site location analysis demonstrates that Parcel Q is the most suitable location for the School of Management project.

4.0 HISTORIC RESOURCES

4.0 HISTORIC RESOURCES

4.1 INTRODUCTION

This chapter contains an assessment of historic resources at and near the new School of Management site. A full analysis of potential impacts on the adjacent Bay State Road/Back Bay West Architectural Conservation District (the District) and Charles River Basin Historic District is provided. The original Project proposed a ten story building. Largely in response to concerns expressed about potential impacts to this adjacent historic district, a reduced nine story project was developed as a prudent and feasible alternative. Where there are significant differences in impacts, both the nine and ten story project alternatives are mentioned. Potential impacts of the B-4 zoning alternative is discussed where appropriate. Potential impacts of the no-build alternative are not analyzed but discussed in the visual section of this chapter.

It is recognized that the Project is subject to MGL, Ch. 9, Section 26-27c as amended by Ch. 254 of the Acts of 1988. This chapter is organized in a way to assist the Massachusetts Historical Commission in their regulatory review of the Project. In Section 4.8, Mitigation Measures, the consultation process between the University and MHC is described. Specific commitments by the University to offset project impacts are also detailed as the basis for a Memorandum of Agreement.

4.2 HISTORIC BACKGROUND

The following section provides a brief description of the history of the Project site and other historic resources in the area, including the adjacent historic district. The new School of Management project site is not located in a historic district. However, the Project site is adjacent to the District, which is designated as a local landmark and is listed on the State Register of Historic Places. The project is also near the Charles River Basin Historic District.

Site History

Background research indicates that the Project site was formerly an area of salt marshes and mud flats adjacent to the Charles River and was filled in the late 1800's as part of the development of the Back Bay. There is no record of occupancy or use of the Project site until 1926, when a billboard structure was known to be located on the site. This was removed in 1927. The eastern portion of the site was used as a parking lot for the Lahey Clinic, established in the mid 1920s on Bay State Road. It was reported that a "Brown's Dining Car" was parked at the corner of Sherborn Street and Commonwealth Avenue in 1928. The site was vacant from 1931 until 1935, when a two story single family brick building was erected at 597 Commonwealth Avenue. In

1937, a "Texas Company" service station was built at 601 Commonwealth Avenue. In 1954, this facility was razed and replaced with a new service station which included a three car garage. In 1987, the service station was razed and replaced with surface parking. (Site remediation activities related to the gas station removal are discussed in Chapter 6.0, Oil and Hazardous Materials.)

Bay State Road

Bay State Road was developed principally between 1890 and 1915 with townhouses and mansions; and later with apartment buildings. During this time period, a fairly cohesive streetscape of three to five story brick townhouses were established reflecting a range of authentic revival styles. The popularity of the street was short-lived, however, and by the 1920s it had lost developer and owner interest to the expanding suburbs. It was during this period when Boston University first acquired land along Bay State Road in preparation for the establishment of the Charles River Campus. A decade later, luxury apartment hotels, such as the Myles Standish and Sheraton, filled vacant spaces. Bay State Road also flourished with attractive homes and doctors' offices including the Joslin and Lahey Clinics.

After World War II, the suburbs boomed and the demand for city townhouses dramatically declined. Boston University acquired additional land and buildings in the area which have become integral to the University's Charles River Campus. The University used these historic buildings along Bay State Road to serve residential and academic needs of the institution and continues to utilize these buildings in this manner.

While the majority of Bay State Road was left with an attractive cohesive streetscape of historic buildings, the block between Deerfield and Sherborn Streets was left with significant gaps particularly on the south side. While some of the "holes" remain today, others were filled with more modern buildings such as the nine story Boston University dormitory at the corner of Sherborn Street, and the two-story building and parking lot at the corner of Deerfield Street. The School of Management project uses compatible brick and facade design and provides additional framing and protection from commercial activities on Commonwealth Avenue to the historic district.

Bay State Road/Back Bay West District

In 1979, the Bay State Road/Back Bay West Architectural Conservation District was designated by the Boston Landmarks Commission under Chapter 722 of the Acts of 1975. After an extensive study of the area, the District was created in recognition of the architecturally and historically significant residential buildings along Bay State Road and the Back Bay West area. By virtue of this designation, the District is a State Register property.

The District contains about thirty acres of land including close to 200 buildings. These buildings are predominantly three to five story brick townhouses, most of which were constructed between 1890 through 1914. Architectural styles reflect a range of Authentic Revivals including McKim Classical, Renaissance, Georgian, Federal, and Tudor Revivals. The great majority of buildings are in good to excellent condition due to pride and concern of the property owners, including Boston University.

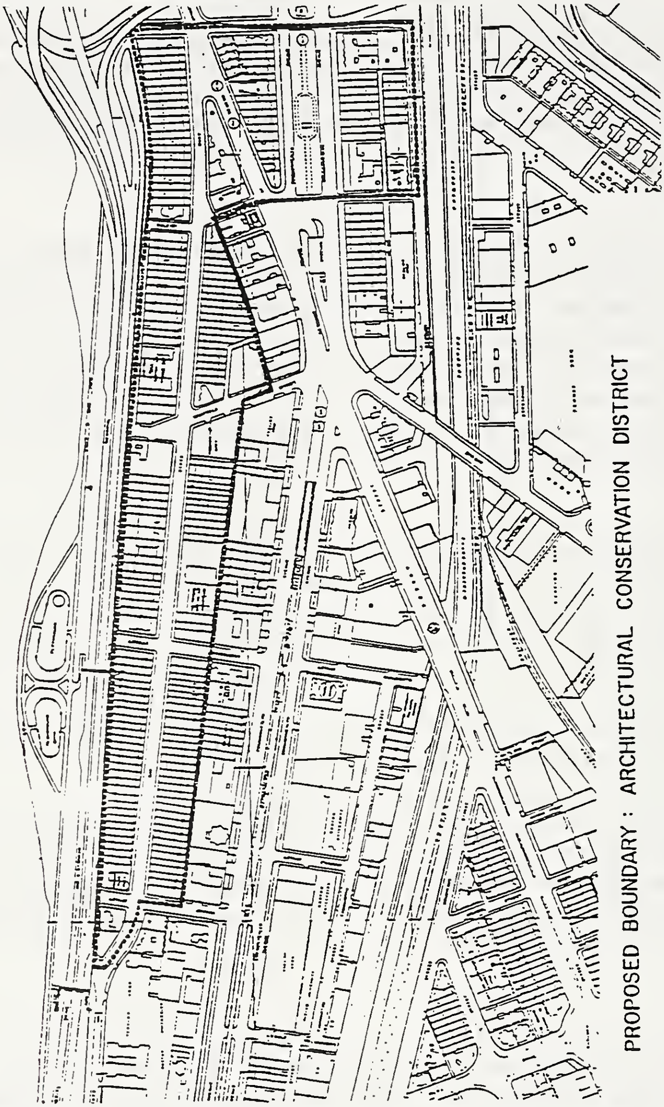
The original investigation of the area targeted only Bay State Road, but the study was expanded to include sections of Commonwealth Avenue, Newbury and Beacon Streets and the Kenmore Square commercial area. The final District boundary, as shown in Figure 4-1, reflects the cohesive streetscape, architecturally significant houses and historically significant buildings key to the history of the area. The Kenmore Square area and Commonwealth Avenue to the west of Kenmore Square were excluded from the District, not only because of different character, but the commercial architecture predominant in these areas did not include the same developmental framework as Bay State Road.

The District boundaries were reaffirmed in 1988 when the Boston Landmarks Commission rejected a petition to expand the Bay State Road/Back Bay West district to include four buildings on Commonwealth Avenue in the area (533 - 541 Commonwealth Avenue). It was determined that these buildings were not visually related to the District and were not an essential part of the physical surroundings. In February of 1993, a petition was filed to conduct a study that would expand the District to include the new School of Management site (533 - 665 Commonwealth Avenue). The Boston Landmarks Commission again rejected this petition because these areas included vacant lots, a modern hotel, fast food restaurants, and institutional buildings, all of which were not essential to the historic environment of the Bay State Road.

Presently, the University owns and occupies over one million square feet of space within the District, including approximately 80% of buildings along Bay State Road, making Boston University one of the largest private owners of historic property in the city. The University views this landmark part of campus with great pride. Prestigious academic centers and executive offices are located in this district and special faculty, parent, alumni, and other functions are held on these properties.

The University works vigorously and invests a premium to enhance the historic character of the District. Examples include the creation of George Hart Way and Warren Alpert Mall along Bay State Road, and implementation of an extensive landscaping and maintenance program. Recently, at the urging of the University, New England Telephone buried unsightly phone lines underground along Bay State Road.

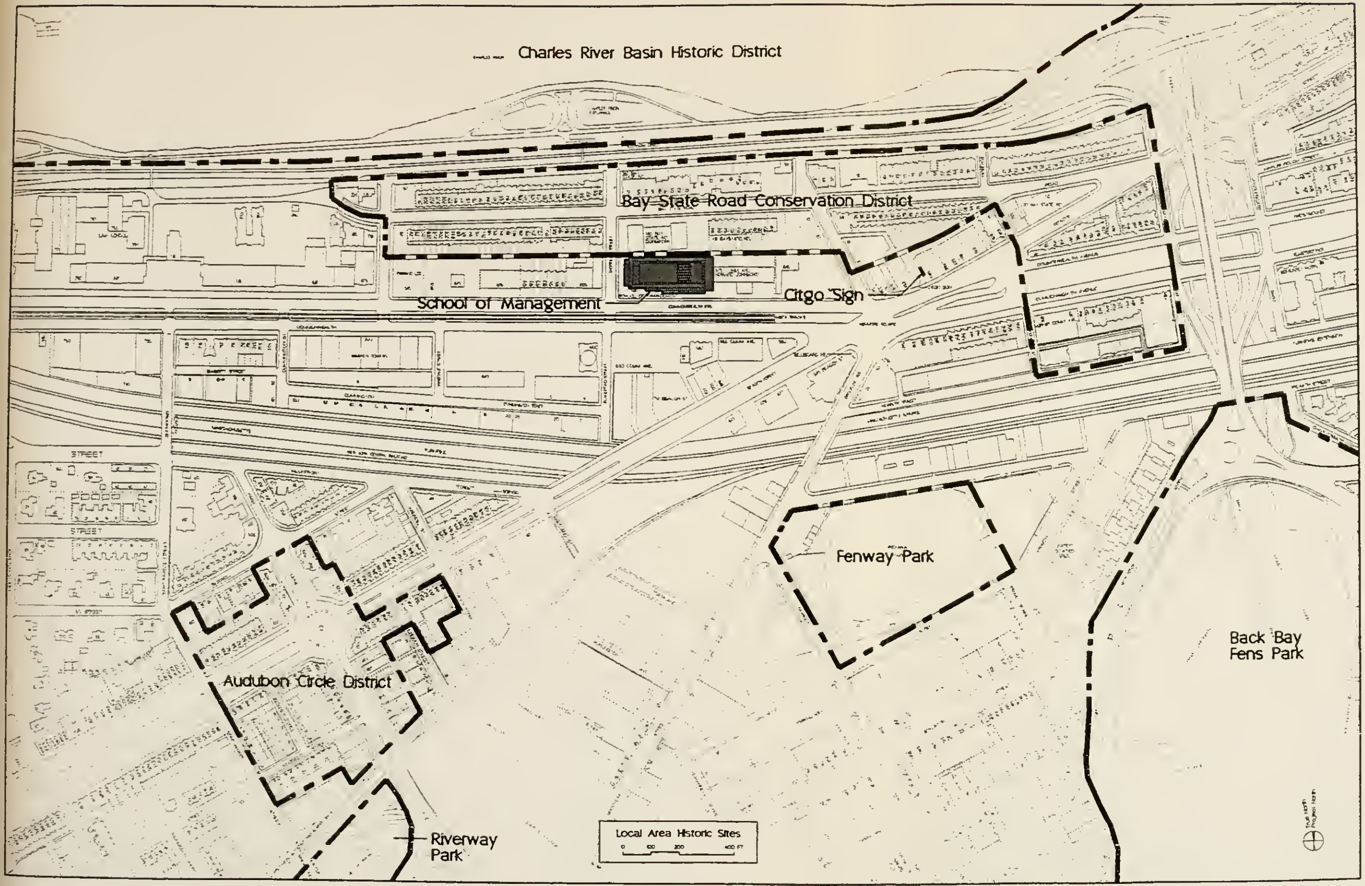
The University implements a comprehensive maintenance program for Bay State Road which includes street cleaning, power sweeping, snow removal, trash and poster removal, a landscaping program, and pest control. The University has also worked closely with the Boston Landmarks



Bay State Road/Back Bay West District

Prepared By:
Fort Point Associates

Figure 4-1



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Local Area Historic Sites

Figure 4-2

Prepared By:
Cannon

September 1993

Commission staff to enhance the historic character of the exterior of the buildings by removing paint, restoring historic facades, and installing period doors. The University has also restored the interiors of many buildings with period furniture and fixtures. These improvements represent a substantial financial investment by the University in support of the historic character of the area. Boston University continues to pursue long and short range enhancements of the District.

Other Historic Sites in the Area

The Charles River Basin, listed on the National and State Register of Historic Places, is a notable historic resource near the Project site. The Basin integrates a historic corridor with scenic views of Boston and of lovely trees, parkland, and recreation activities along the banks and in the water. Also located near the Project site is the Citgo Sign in Kenmore Square which is eligible for listing on the National Register. While distant from the influence of the Project, additional historic resources include Audubon Circle, Fenway Park, and the Back Bay Fens. Other resources, such as the Riding School, are even further from the Project site and do not show up on the Local Area Historic Sites map (see Figure 4-2).

4.3 POTENTIAL IMPACTS

Under the provisions of 950 CMR 71.05, the Massachusetts Historical Commission (MHC) is required to evaluate a proposed project for potential effects to historic and/or archaeological resources listed in State Register of Historic Places. A project proponent is required to notify the MHC and the MHC reviews the project to determine the potential for direct or indirect adverse effects. In the event of a finding of adverse effect, the MHC and proponent must attempt to identify prudent and feasible means to eliminate, minimize, and mitigate the adverse effects. The MHC evaluation is conducted in accordance with the following criteria:

1) Destruction or alteration of all or part of a State Register property.
2) The isolation or alteration of a State Register property from its surrounding environment.
3) The introduction of visual, audible, or atmospheric elements that are out of character with or alter the setting of the State Register property.
4) The neglect of a State Register property resulting in deterioration or destruction.
5) The transfer or sale of a State Register property without adequate conditions or restrictions regarding preservation maintenance or use.

Because this Project requires a state sewer connection permit, it is subject to MHC review. This review is being conducted in conjunction with the MEPA process. An Environmental Notification Form, Notice of Project Change, and Draft Project Impact Report, filed with the City of Boston under Article 31, have been submitted to MHC, along with other supplementary materials to facilitate this review. The new School of Management Project described and analyzed in these documents only included the ten story building alternative.

During review of the Notice of Project Change, the MHC found that the ten story project alternative had potential to introduce visual elements which were considered to be out of character with the adjacent State Register Historic District (March 13, 1993, letter to Executive Office of Environmental Affairs). In particular, MHC was concerned that the scale of the Project building would overwhelm the rowhouses on Bay State Road and cast new shadows on the Charles River Basin Historic District. Since the NPC, the Project has been scaled down and reduced to the preferred nine story alternative.

A B-4 zoning alternative, based on the original B-4 zoning classification, was developed and analyzed for comparison purposes. This alternative is not considered feasible by the University because it does not meet any of their physical and programmatic needs for the Project. The description of this alternative is detailed in Chapter 2.0, Project Description. The discussion of consistency of the B-4 zoning alternative with the Master Plan, zoning, and University needs is further discussed in Chapter 3.0, Zoning and Master Plan Consistency.

Alternative sites on campus for relocation of the Project were also examined along with analysis of reused and vacated space. The findings demonstrate the Project could not feasibly be relocated to other sites on campus without seriously compromising other University program needs, violating the Master Plan, and/or adding significant cost and time to the Project. This analysis is presented in Chapter 3.0.

For the nine story project, it is clear that certain criteria from above does not apply. Criteria (a), (d), and (e) are clearly not applicable to the Project as there is no direct alteration, destruction, sale or use of a State Register property. Criterion (b) is not applicable as the Bay State Road/Back Bay West Architectural Conservation District itself encompasses the whole area determined necessary to provide a complete context which protects the architectural and historic resources of the area. The new School of Management site is located outside of this area. Criterion (c) is the only applicable category. The MHC finding further focuses the specific areas of concern within this category. The analysis below, then addresses each of the areas in criteria (c) but focuses more closely on the potential visual impacts on the District and shadow impacts in the area.

The analysis demonstrates how the preferred nine story alternative minimizes the impacts of concern as compared to the ten story alternative. Comparisons with the B-4 zoning alternative and No-Build/existing conditions are included where appropriate.

4.4 VISUAL IMPACTS

4.4.1 URBAN DESIGN

The new School of Management building is designed to address a combination of factors: the dense urban character of Commonwealth Avenue/Kenmore Square; Boston University's program needs; and the architectural elements of both the Charles River Campus and Bay State Road buildings. The Project building design takes into consideration the neighboring historic district, the University's programmatic needs, and the commercial context of Commonwealth Avenue. The new School of Management effectively balances the University's need to upgrade the School of Management with the goal of preserving and complementing the historic character of the adjoining District.

Over the past ten years, the architectural signature of new buildings on the Charles River Campus has been consistent. This style employs a red brick middle with a light colored stone base and large deep recessed windows with brick lintels overhead, similar in style to the Boston University Bookstore Mall. The use of red brick with a stone base pattern is also consistent with the style of historic buildings in the area such as Myles Standish Hall dormitory and 147 Bay State Road. The presence of similar styles can be seen beginning in Kenmore Square at the Boston University Bookstore, continuing west on Commonwealth Avenue at the Metcalf Science Center (590 Commonwealth Avenue), the Biology and Physics Building (620 Commonwealth Avenue), and Sargent College (630 Commonwealth Avenue). The new School of Management building employs the same materials in a similar motif but incorporates more stone at the base and cornices. The building reinforces the recent architectural style on the campus.

Like many of the buildings in the area, the Project's facade is divided into three horizontal sections: base, middle, and top. The base of the building consists of an articulated ground level with transparent storefront glazing and a loggia located at both entries. It begins with a three foot high band of granite starting at grade level, upon which is 27 feet of banding. Similar to the way in which it is used in surrounding buildings, such as the Boston University Bookstore Mall in Kenmore Square, the height of the base in proportion to a person walking next to the building will give the perception of a stone structure. Yet as one views the building from a distance, the intermixing of brick and stone become apparent.

The middle of the building is emphasized by the expanse of red brick separated from the base by limestone bands and the use of deepset punched windows with sunscreens. The top of the building is defined by upper and lower bands of light colored pre-cast material, a different rhythm of fenestration from other portions of the building. The building is completed by the articulation of the penthouse and skylight modulation producing a focal point in the skyline.

On the north side of the new School of Management building (facing the District and river), curved balconies were incorporated into the facade to bring texture and rhythm reminiscent of the Bay State Road townhouses. This feature contributes to the visual continuity of the townhouses as viewed from both Bay State Road and the Charles River (see Figures 4-3 through 4-5).

The Project will be visible from some points within the District, primarily from the north side of Bay State Road within the first half block east and west of Blandford Street. While the building can be seen from the Charles River Historic District, it is not obtrusive to the view corridor. The height and massing of the building maximizes the use of the site, without dominating views from within the District. From the southern bank of the Charles River, the view of the Project is largely obscured by existing buildings and trees. Only the upper portion of the Project will be visible from the riverbank. Existing views are already blocked by existing buildings at the street level except along certain streets and open areas. This condition will not be significantly altered by the Project. The nine story project with its lowered height, further reduces the introduction of visual elements into the historic district from the ten story alternative.

Before and after construction views of the Project were selected in an attempt to better understand potential visual impacts of the new School of Management in relationship to the historic resources in the area. These views were developed by taking photographs of existing conditions from locations which best present the relationship of the Project to historical resources. Computer images of the Project along with existing adjacent buildings were then generated. Perspective views which match the photos were then printed out from the computer and enlarged until they matched the outlines of existing buildings in the photographs. Once this match was achieved, these images were then presented in sketch form.

Before and after views from the historic district and riverbank of the nine and ten story alternatives illustrate how the alternatives will visually impact the historic district and riverbank. Selected B-4 zoning views are also included for comparison purposes (see Figures 4-6 through 4-20).

4.5 AUDIBLE EFFECTS

4.5.1 CONSTRUCTION

Construction of the new School of Management will temporarily alter the noise environment of the adjacent District due to operation of construction equipment. This will be a short-lived impact which will take place only during regular work hours. This effect will be most pronounced during the site excavation, foundation construction, and steel erection phases of the work. Once the building shell is completed, noise generated by interior finish work generally will not be audible outside the building. No truck traffic or staging associated with construction of the Project will involve the use of Bay State Road. No blasting or impact pile driving is anticipated as part of the Project construction.

4.5.2 OPERATIONS

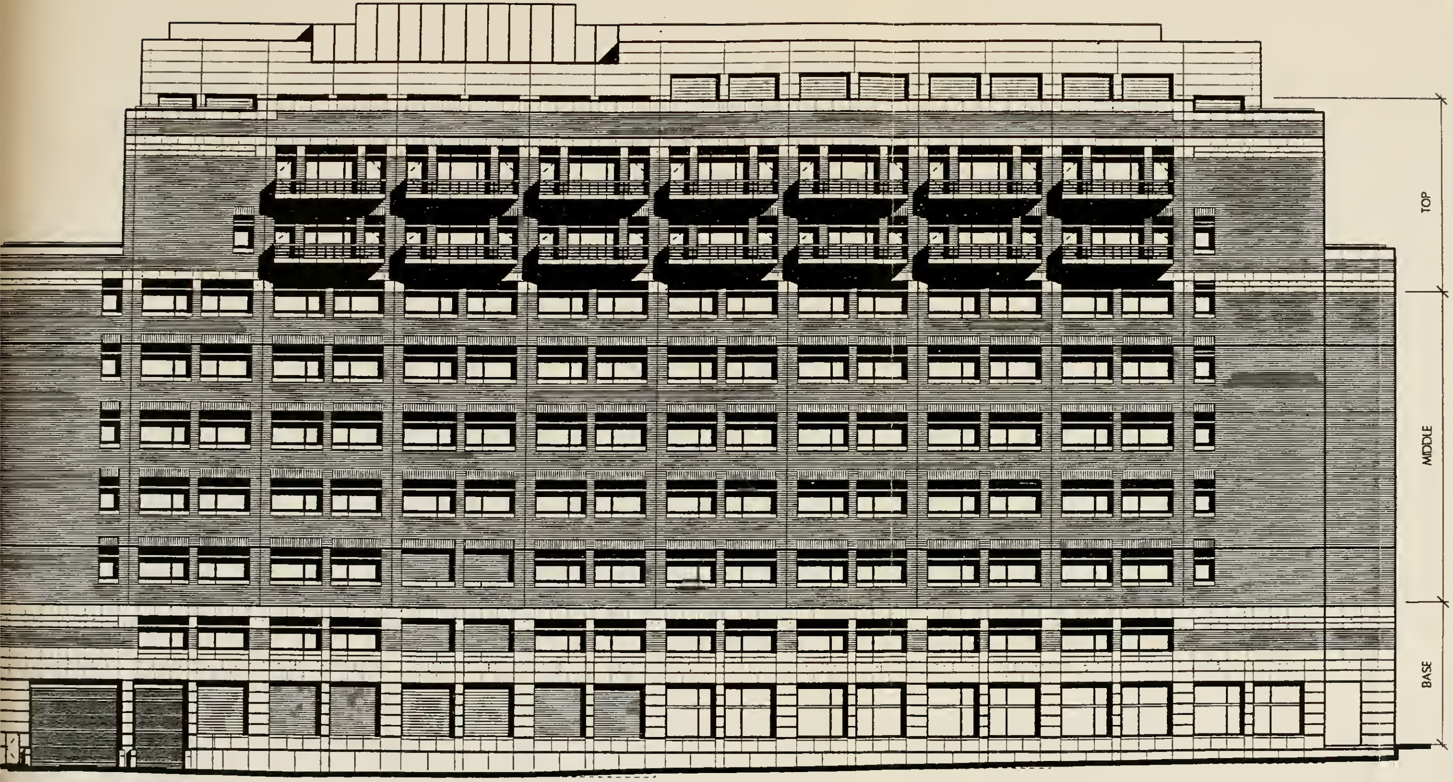
Noise associated directly with the long-term operation of the building and noise resulting indirectly from its operations, i.e. traffic, will not adversely affect the District or other historic resources in the Project area. Since the entrance to the Project parking garage is located on Commonwealth Avenue, and the parking for the building will be in an enclosed below-grade garage, it is probable that noise impacts associated with vehicle use will be less than it is now with the existing surface parking lot use. Further, the new School of Management building will shield a portion of the District from the noise of trolleys and heavy traffic on Commonwealth Avenue. Garage exhaust louvers in the alley and roof-mounted mechanical air-handling equipment will be properly attenuated to ensure that noise from this source will not adversely affect adjacent uses or sensitive receptors in the District, such as the Boston University dormitory across the alley on Bay State Road.

Noise impacts from the School of Management project, from both construction and operations, on the Charles River Basin will be insignificant due to attenuation of mechanical systems and high ambient noise levels from Storrow Drive.

4.6 ATMOSPHERIC ELEMENTS

4.6.1 AIR QUALITY

The Project will not introduce any "atmospheric elements" which are out of character with, or which would alter the setting of the adjacent District. Air emissions resulting from construction (short-term impact) and operation (long-term impact) will be negligible and will not adversely effect air quality. None of the build alternatives would significantly impact air quality.



BOSTON UNIVERSITY
SCHOOL OF MANAGEMENT

NORTH ELEVATION

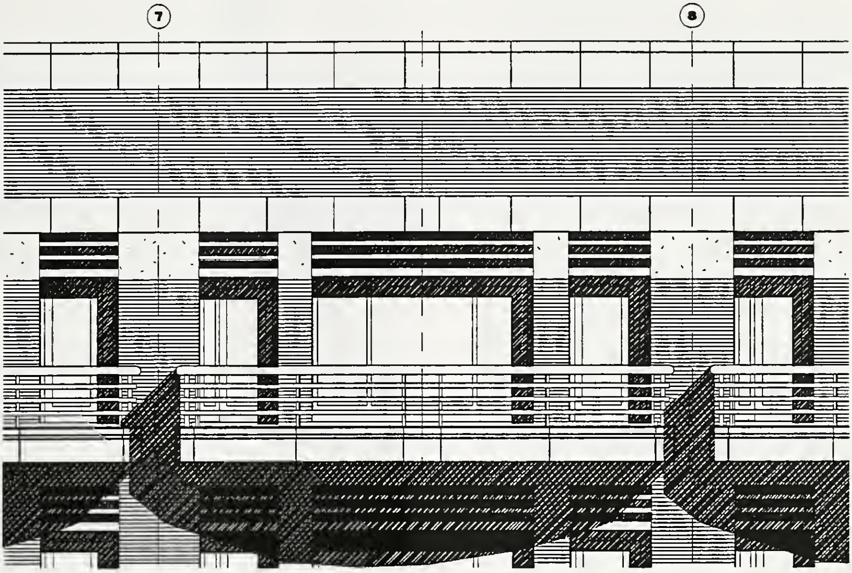
BOSTON UNIVERSITY SCHOOL OF MANAGEMENT

Facade Treatment
North Elevation

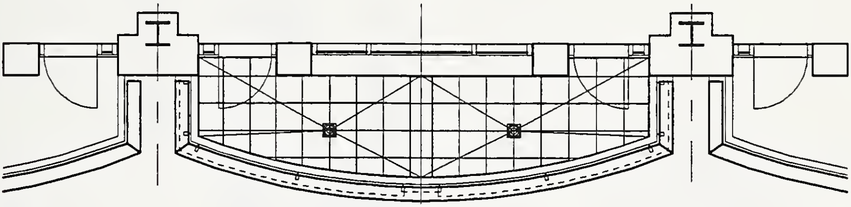
Figure 4-3

Prepared By:
Cannon

December 1993



① ELEVATION



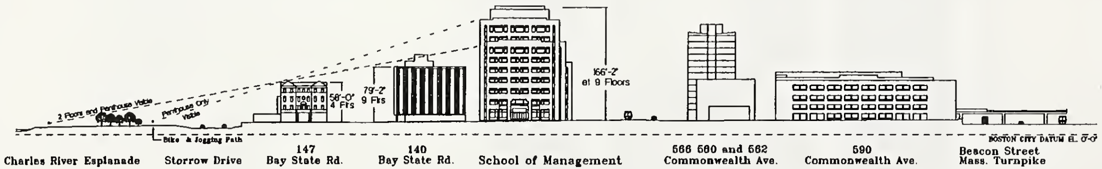
② PLAN

North Face Balcony Detail

Prepared By:
Cannon

Figure 4-4

View Angles from Charles River Esplanade



Nine Story Option

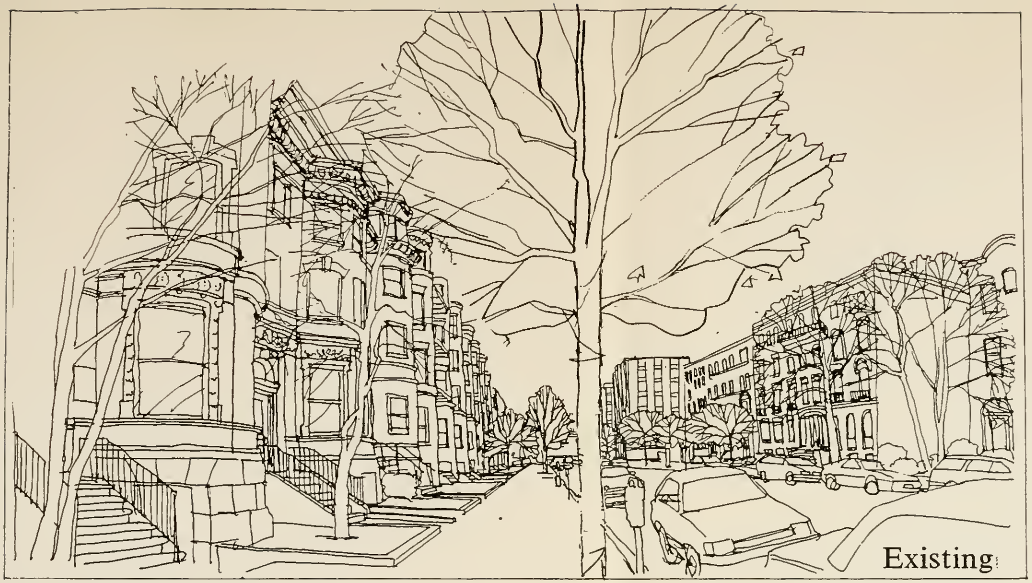
Section Along Sherborn and Blandford Streets Looking East

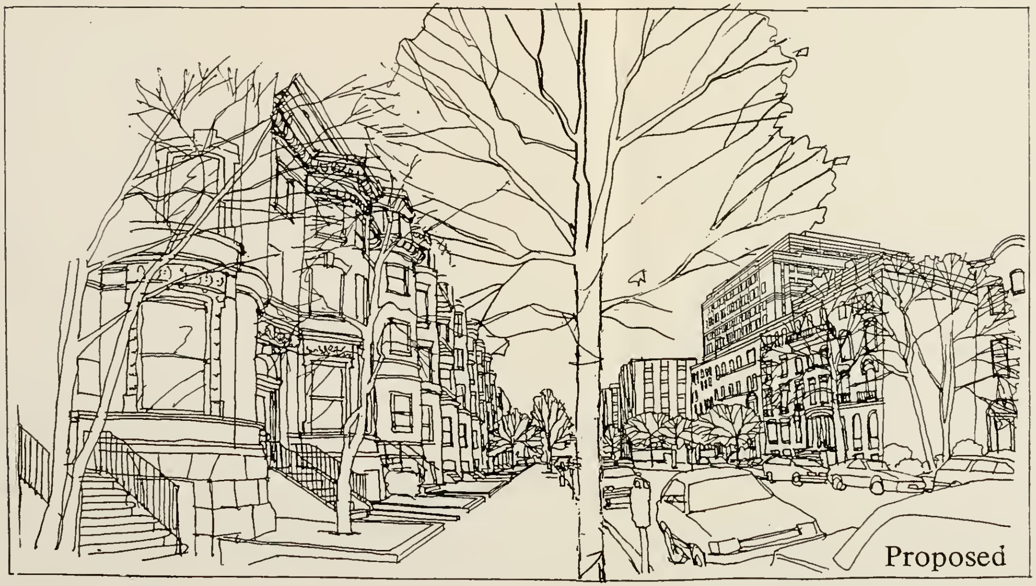
NOTE: HEIGHTS GIVEN ARE FROM ACTUAL OR APPROXIMATE GRADES PER PRESENT ZONING DEFINITION TO TOP OF ROOF STRUCTURE.

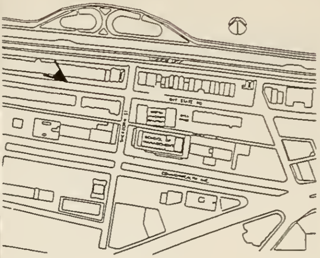
View Angles from Charles River - South Bank

Prepared By:
Cannon

Figure 4-5







BOSTON UNIVERSITY

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10 Story
Bay State Road
(inside)
Looking East

Figure 4-6

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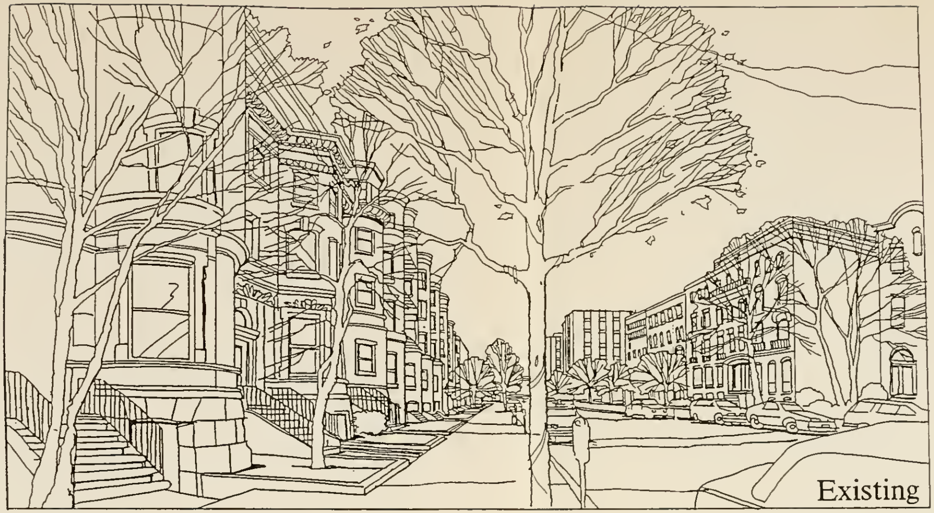
Pressley Associates Inc.

December 1993



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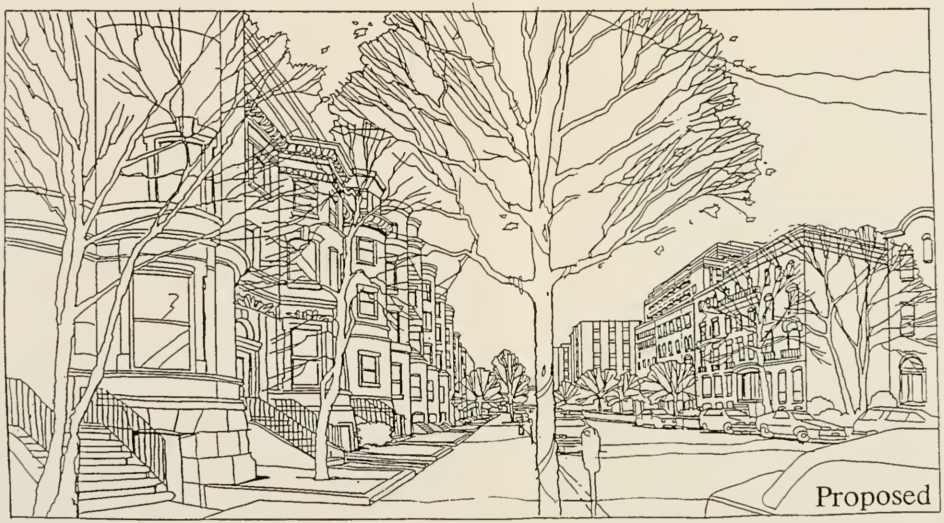

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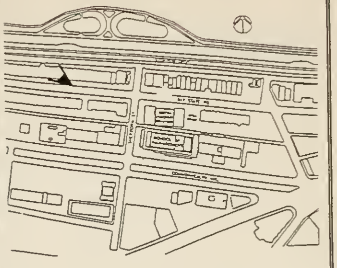

BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

***9 Story
Bay State Road
(inside)
Looking East***

Figure 4-7

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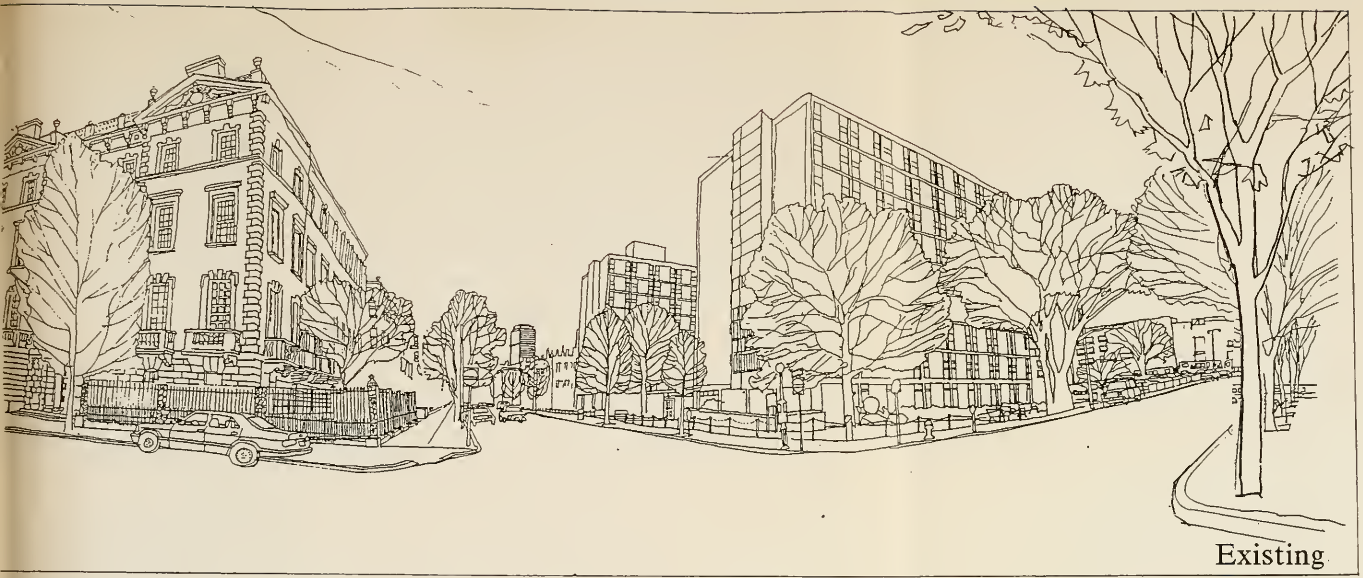

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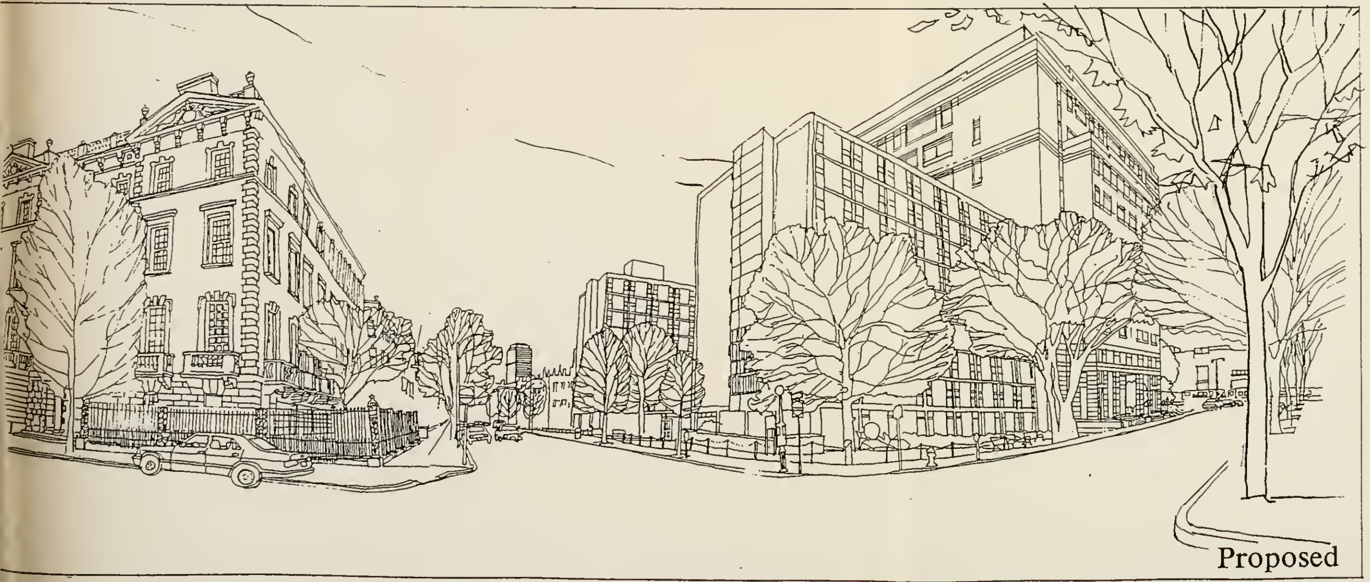

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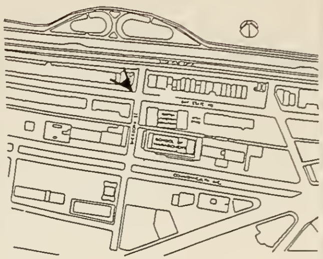

BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

10 Story
View from Bay State Road
(Sherborn Street) Looking East

Figure 4-8

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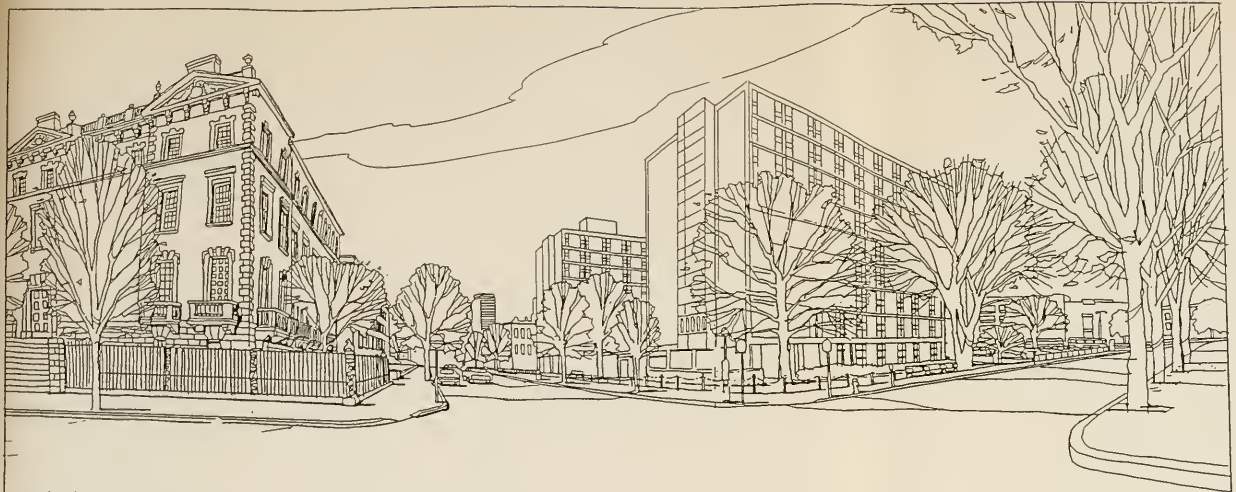
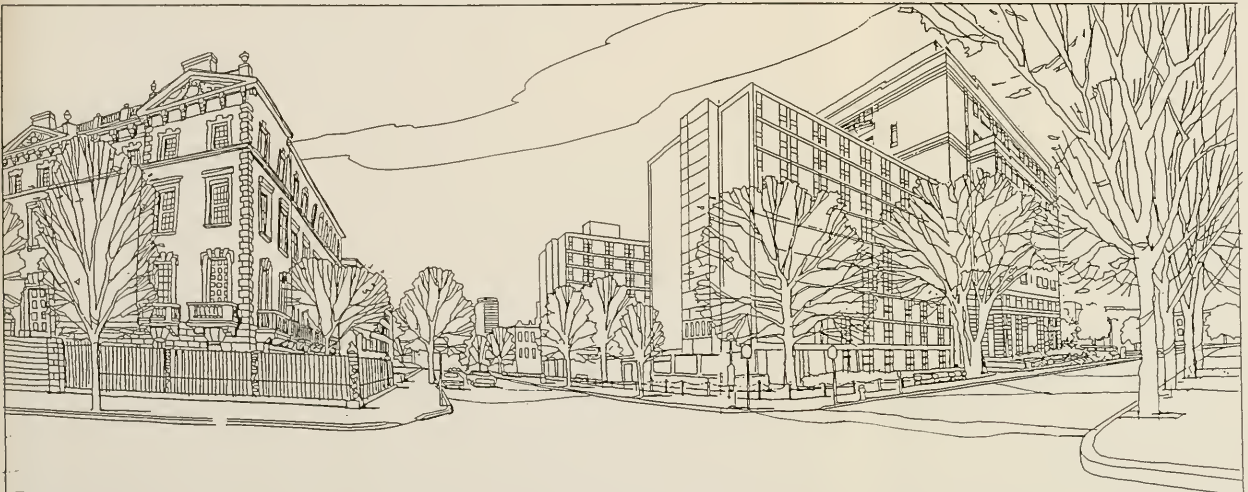
Pressley Associates Inc.

December 1993



Existing



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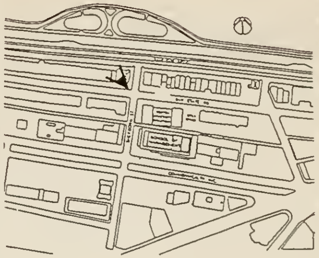

BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

9 Story
View from Bay State Road
(Sherborn Street) Looking East

Figure 4-9

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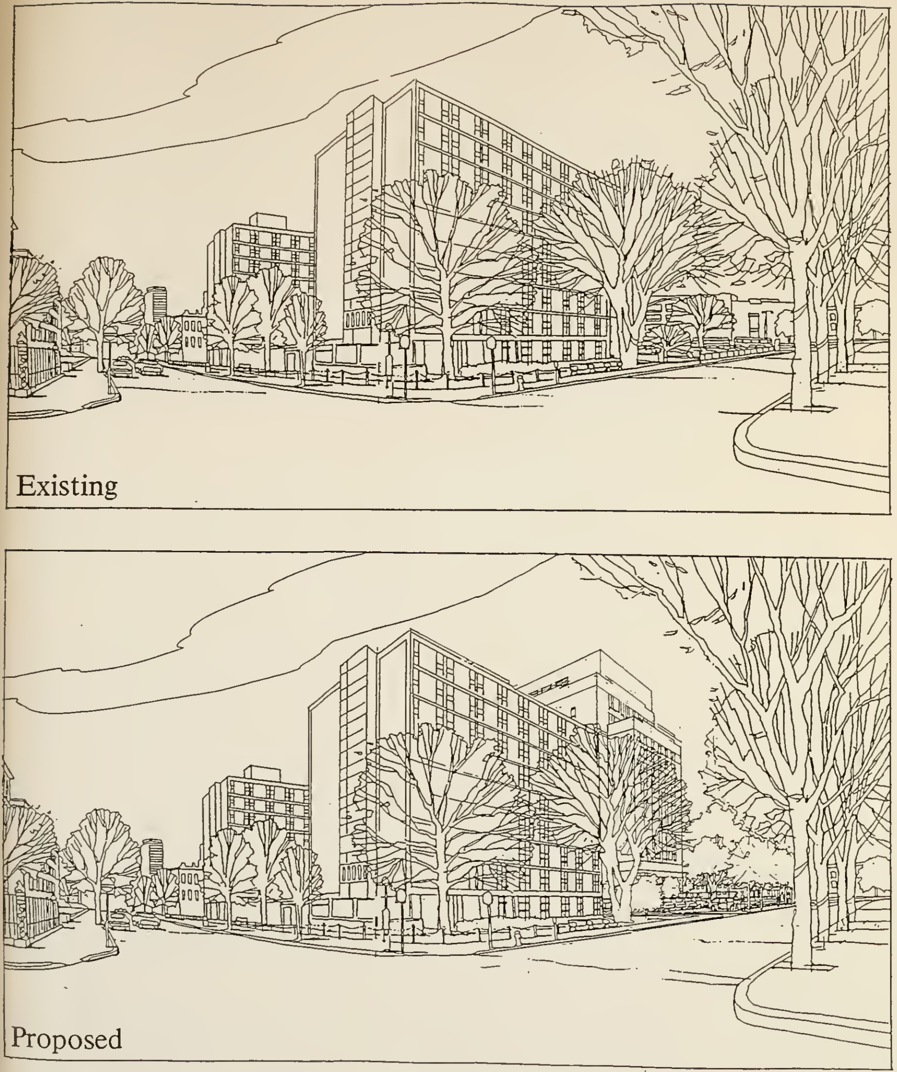
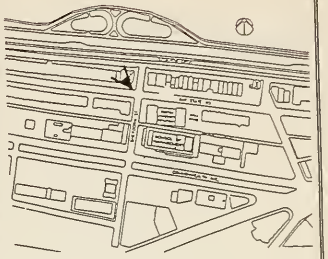
Pressley Associates Inc.

December 1993





BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

B-4 Zoning
View from Bay State Road
(Sherborn Street) Looking East

Figure 4-10

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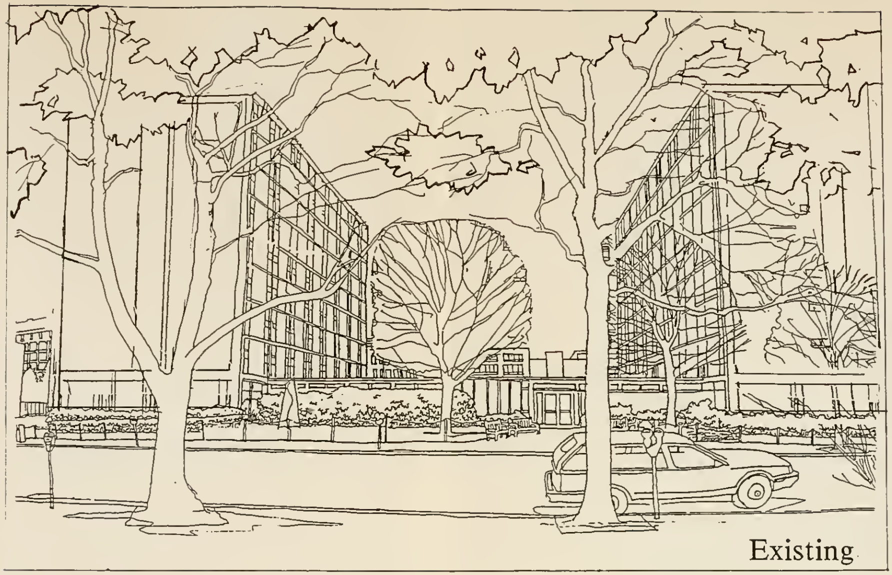
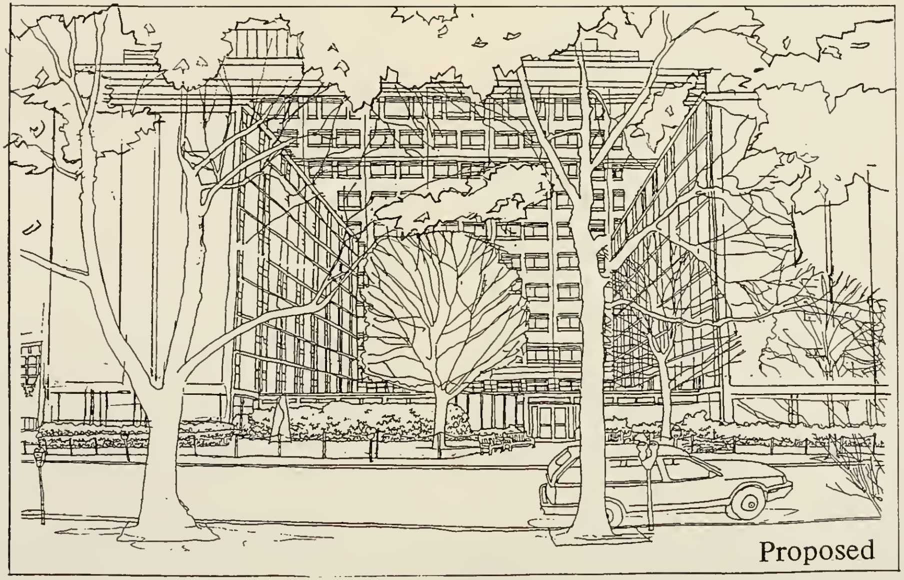
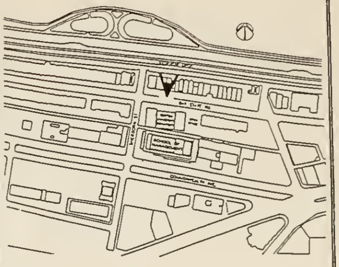
December 1993







BOSTON UNIVERSITY

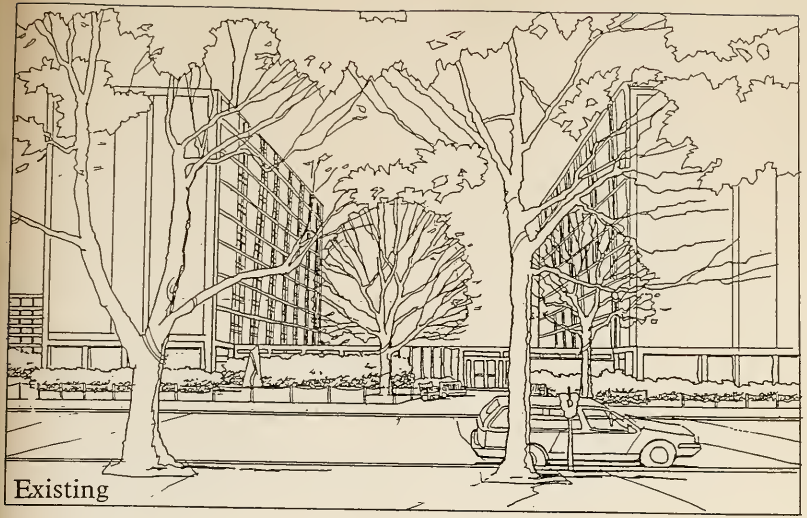
SCHOOL OF MANAGEMENT

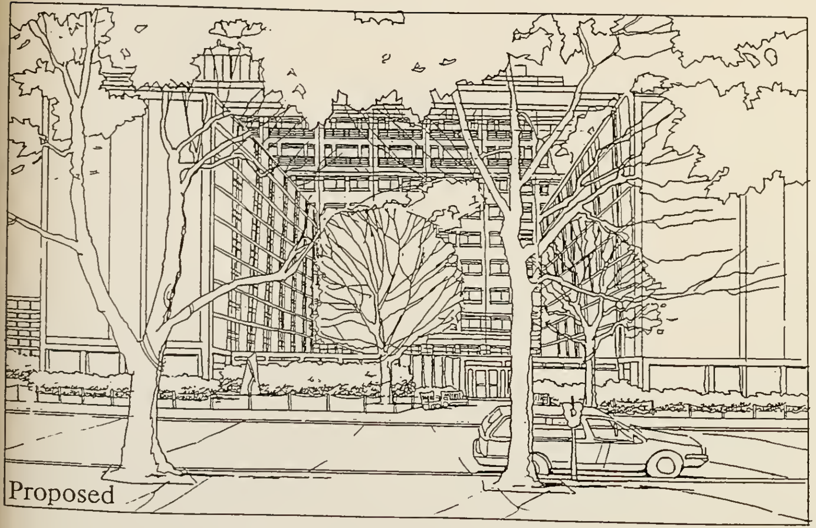
10 Story
View from Bay State Road
Looking South

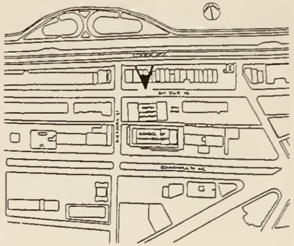
Figure 4-11

Prepared By:
Pressley Associates Inc.

December 1993







BOSTON UNIVERSITY

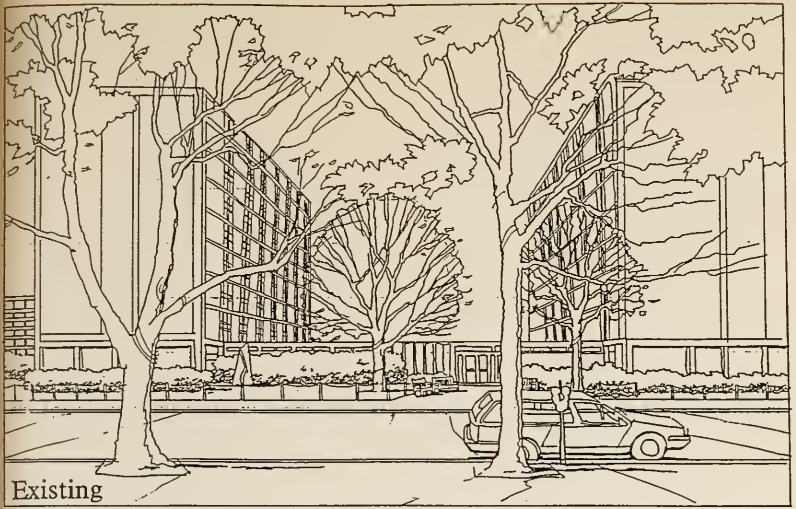
SCHOOL OF MANAGEMENT

9 Story
View from Bay State Road Looking South

Figure 4-12

Prepared By:
Pressley Associates Inc.

December 1993



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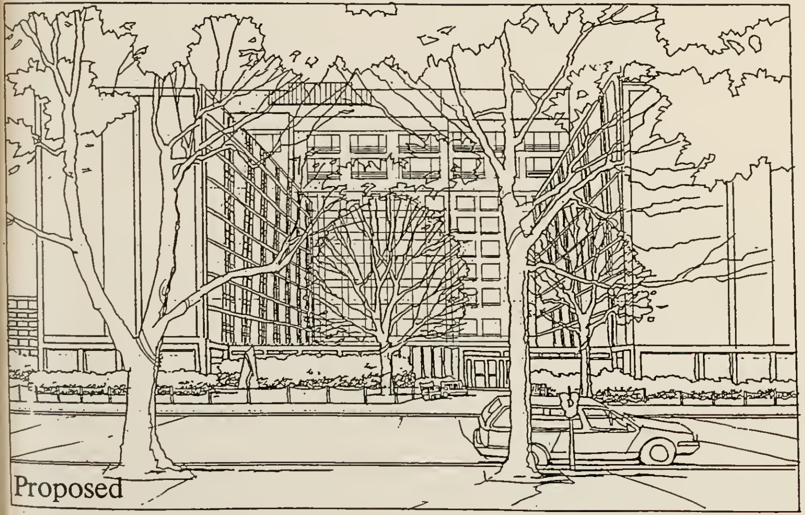

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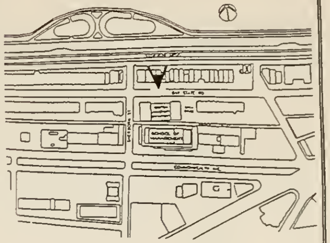


BOSTON UNIVERSITY

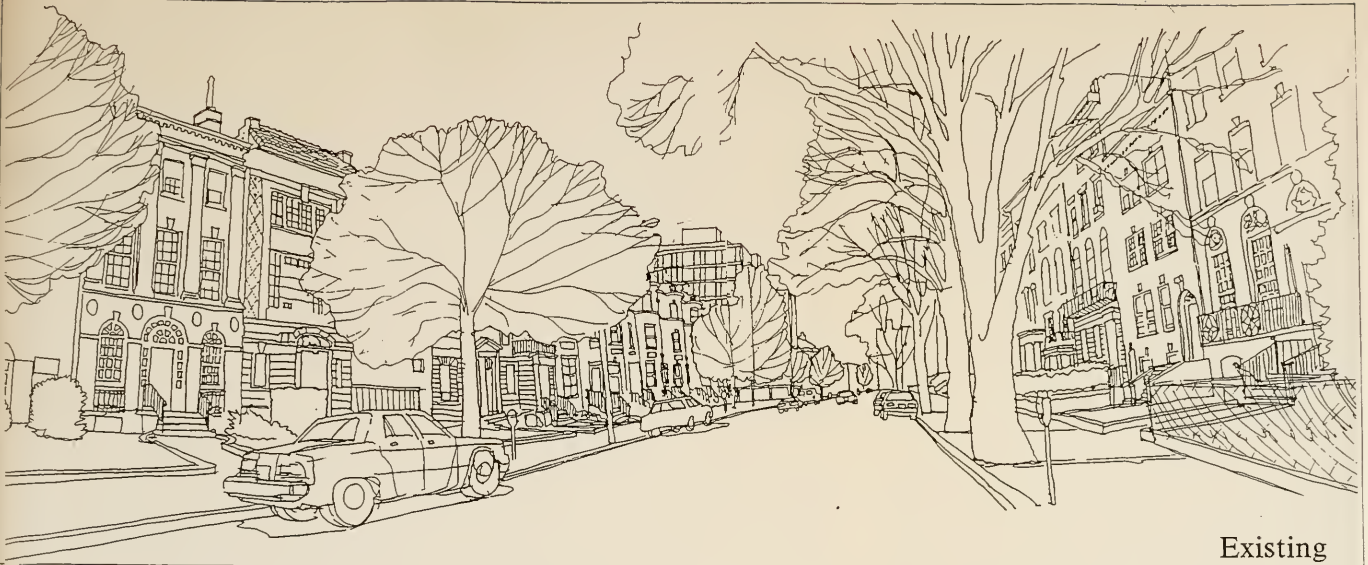
SCHOOL OF MANAGEMENT

B-4 Zoning
View from Bay State Road Looking South

Figure 4-13

Prepared By:
Pressley Associates Inc.

December 1993



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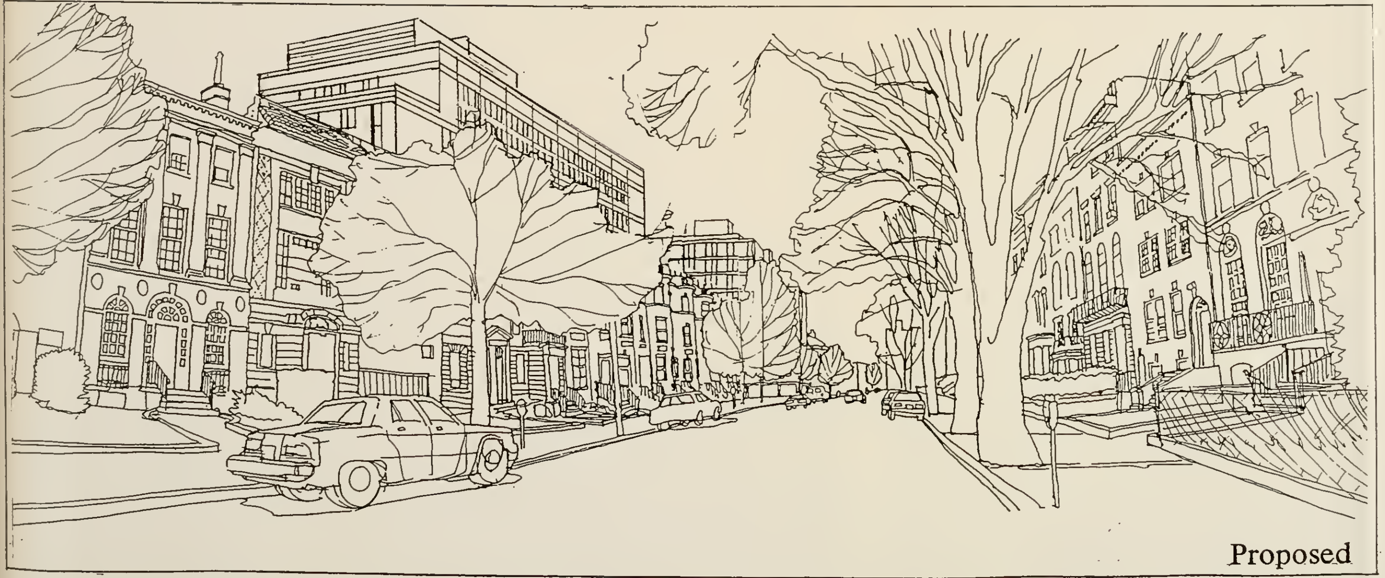

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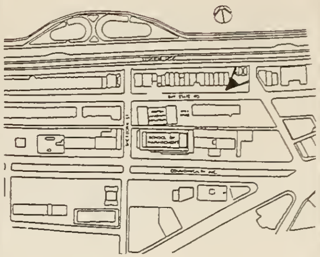


BOSTON UNIVERSITY

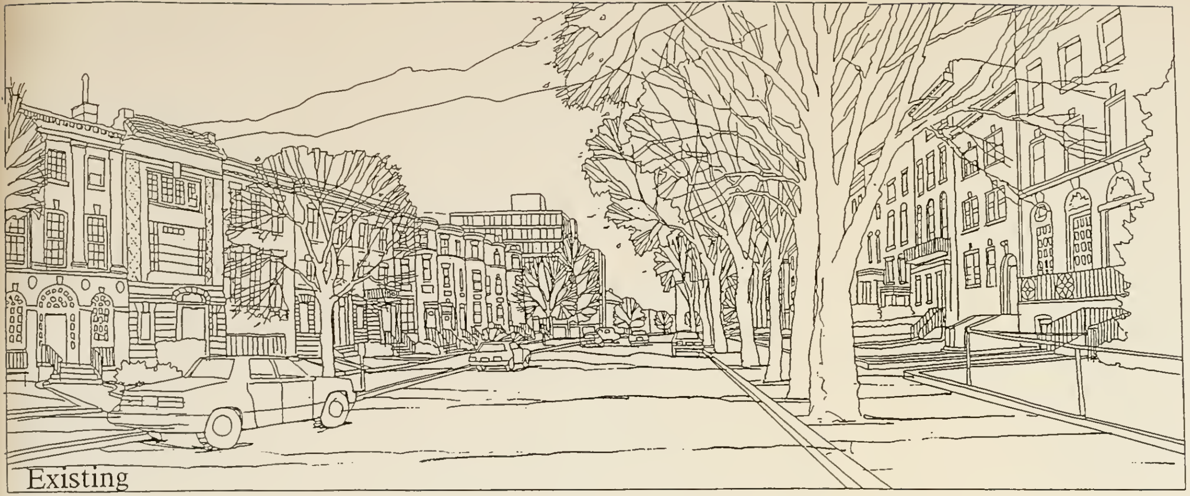
SCHOOL OF MANAGEMENT

10 Story
View from Bay State Road
Looking West

Figure 4-14

Prepared By:
Pressley Associates Inc.

December 1993



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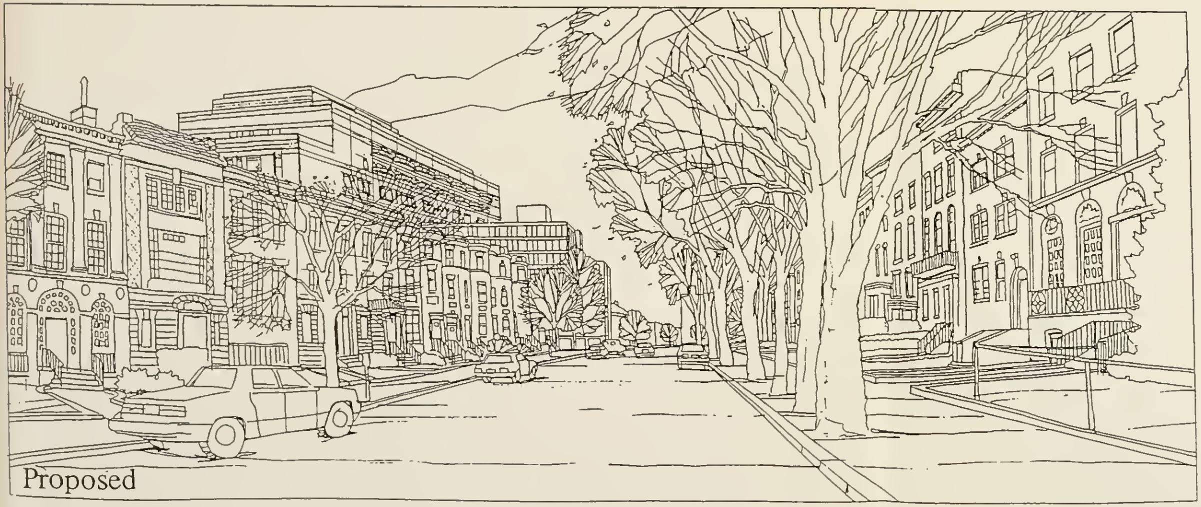

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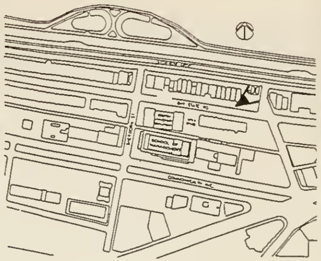


BOSTON UNIVERSITY

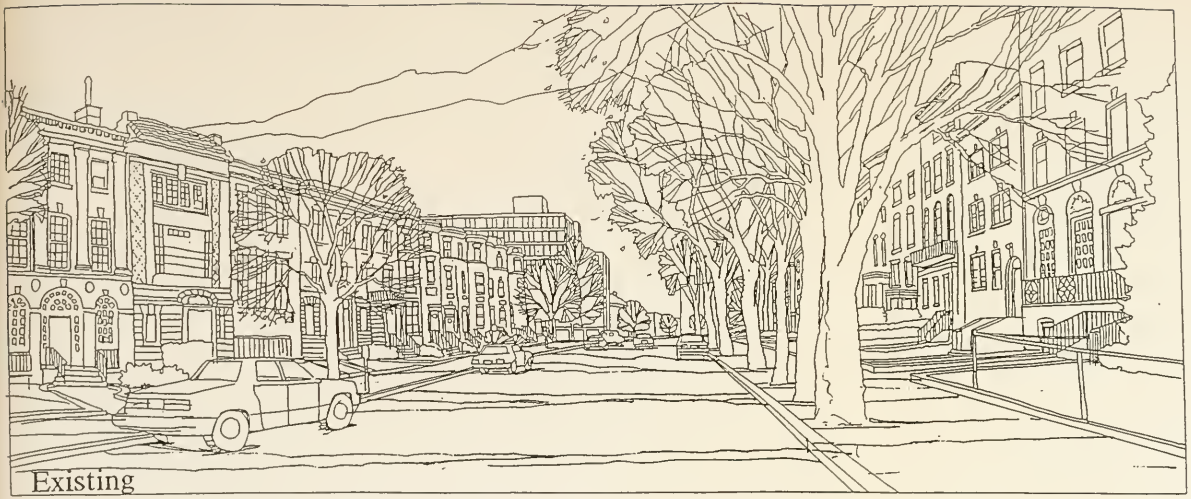
SCHOOL OF MANAGEMENT

9 Story
View from Bay State Road
Looking West

Figure 4-15

Prepared By:
Pressley Associates Inc.

December 1993



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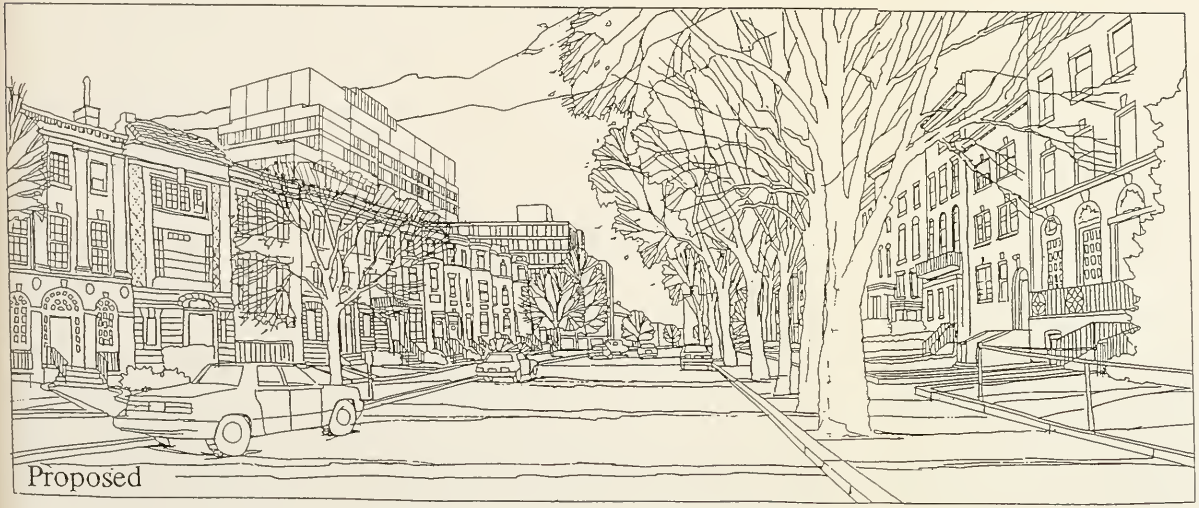

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BOSTON UNIVERSITY

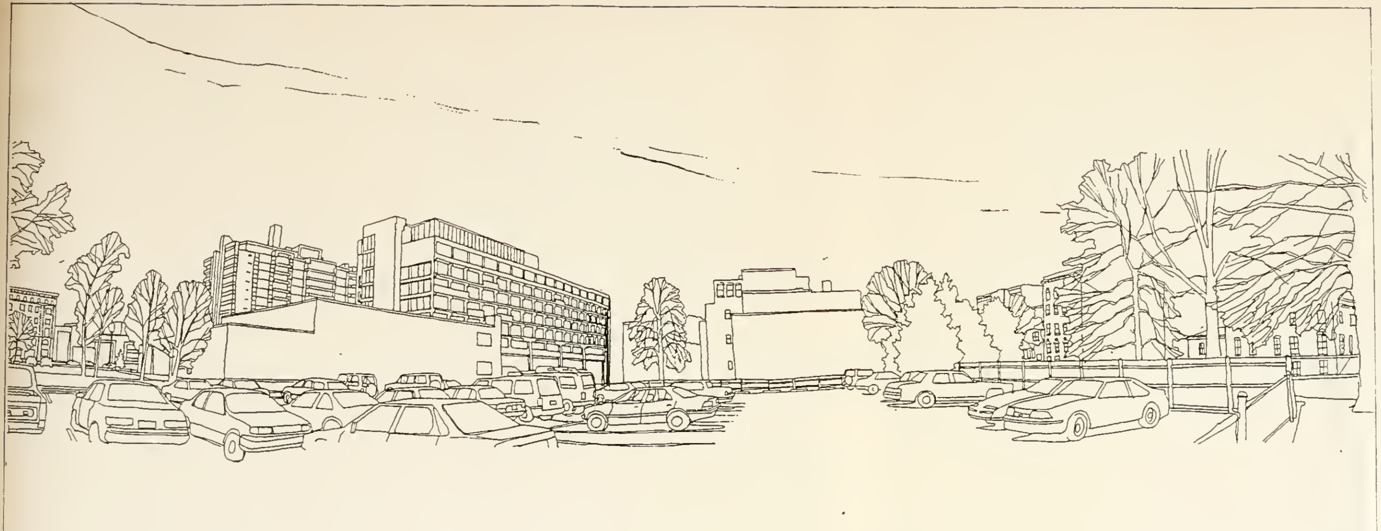
SCHOOL OF MANAGEMENT

B-4 Zoning
View from Bay State Road
Looking West

Figure 4-16

Prepared By:
Pressley Associates Inc.

December 1993



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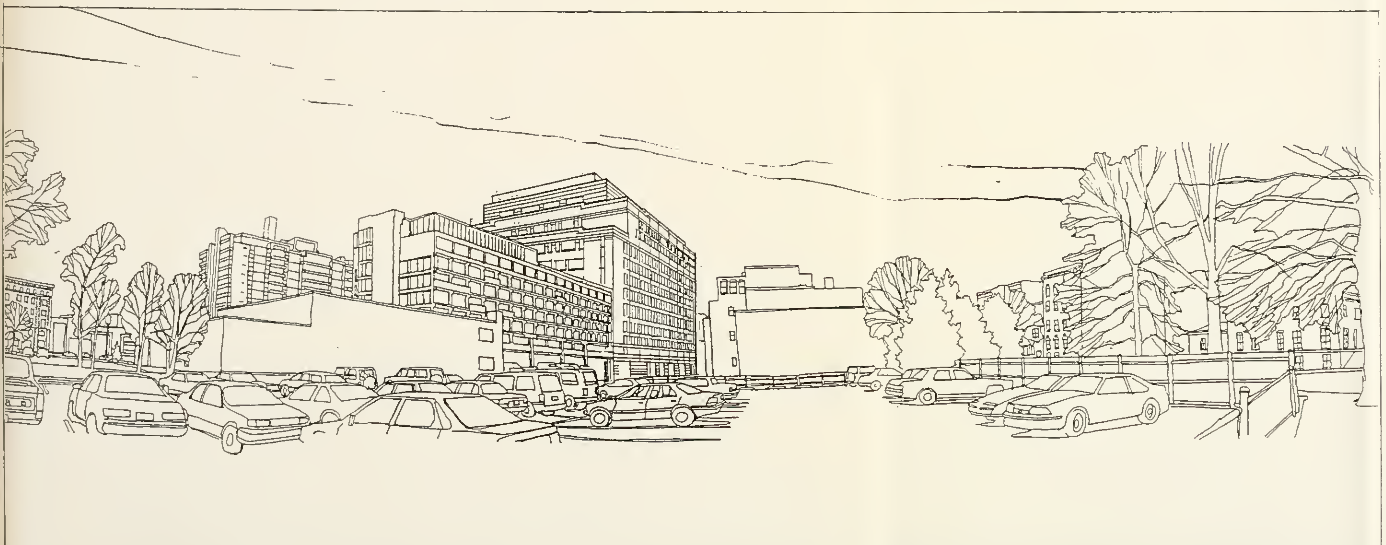

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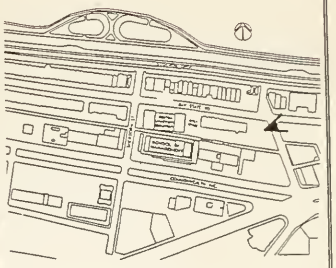


BOSTON UNIVERSITY

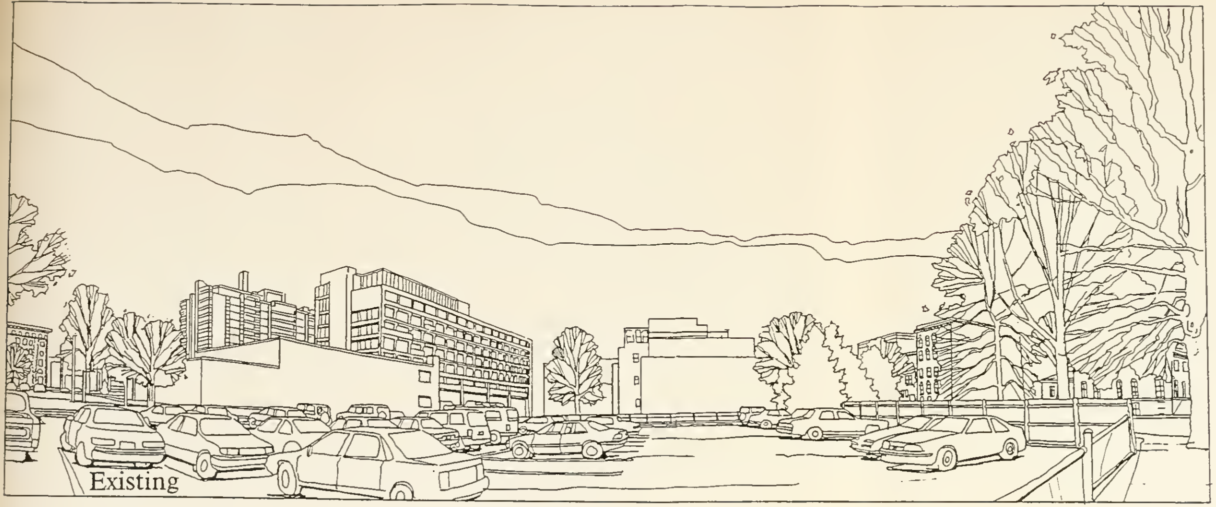
SCHOOL OF MANAGEMENT

10 Story
View from Deerfield Street
Looking West

Figure 4-17

Prepared By:
Pressley Associates Inc.

December 1993



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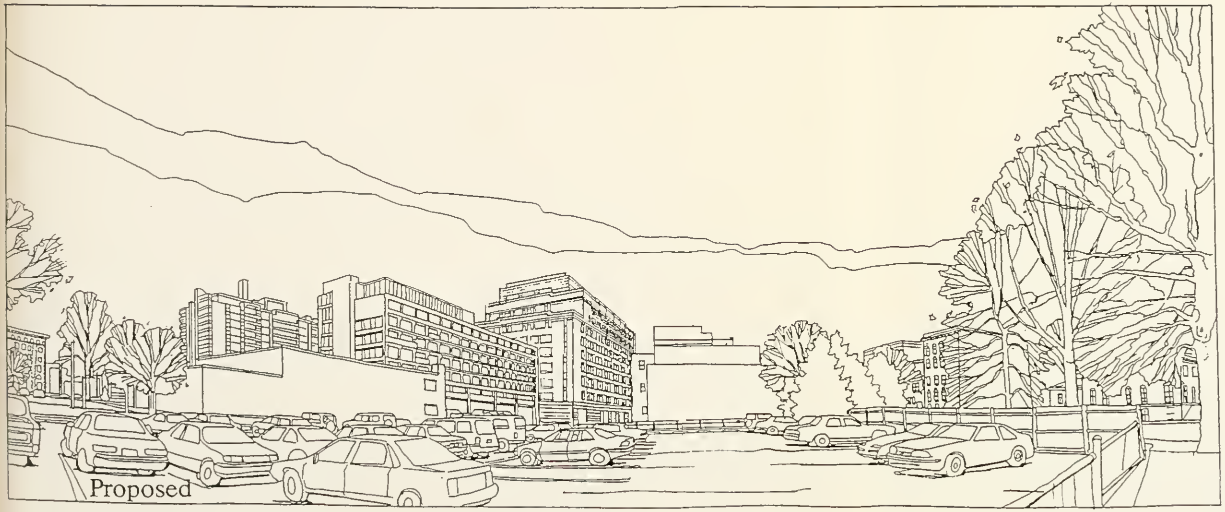

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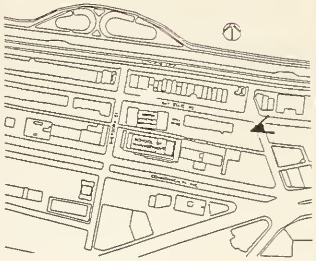


BOSTON UNIVERSITY

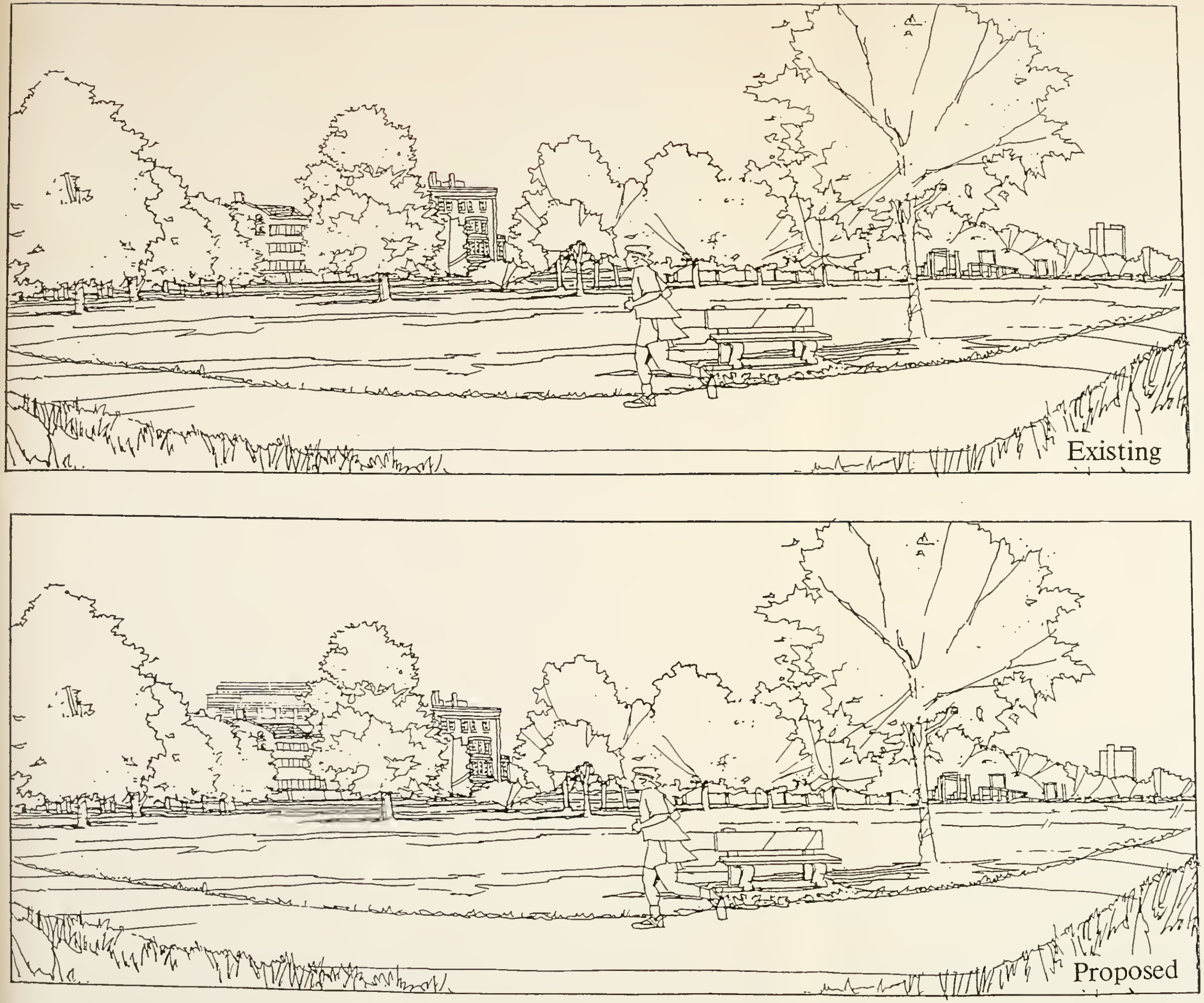
SCHOOL OF MANAGEMENT

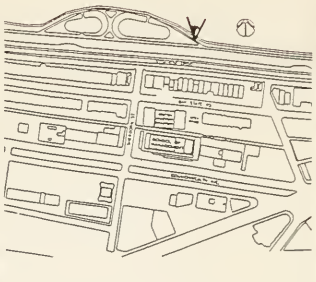
9 Story
View from Deerfield Street
Looking West

Figure 4-18

Prepared By:
Pressley Associates Inc.

December 1993





BOSTON UNIVERSITY

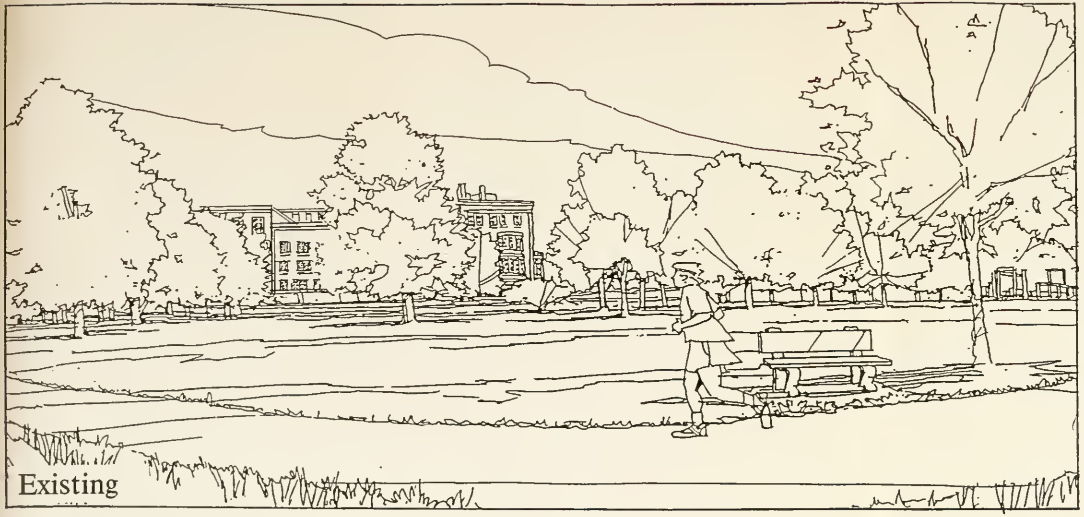
SCHOOL OF MANAGEMENT

9 Story
View from River Bank Looking South

Figure 4-19

Prepared By:
Pressley Associates Inc.

December 1993



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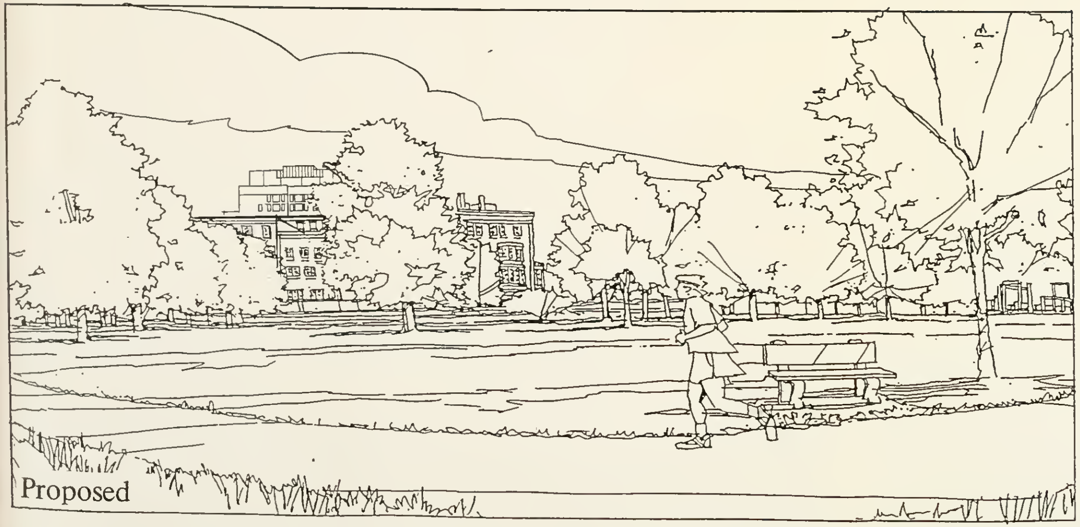

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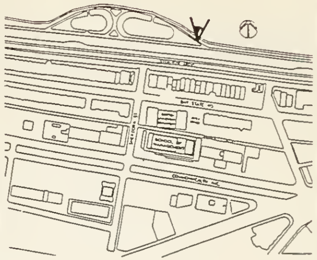


BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT

B-4 Zoning
View from River Bank Looking South

Figure 4-20

Prepared By:
Pressley Associates Inc.

December 1993

The increase in traffic due to the proposed building will be negligible. The Project is estimated to generate an increase of approximately 228 vehicle trips per day for the ten story alternative to a site which already sees over 32,000 trips per day in front along Commonwealth Avenue. The reduction of vehicle trips from the ten story alternative to the nine story alternative is insignificant in relation to air quality measurements. Consequently, the change in air quality due to generation of new traffic associated with the Project will be undetectable. The University will be promoting programs encouraging use of public transportation, car and van pooling which will be detailed in the Transportation Access Plan required by the City of Boston.

Air quality at the garage exhaust louver discharge points is equal to the air quality in the garage. Carbon Monoxide (CO) levels will fluctuate but will not exceed the EPA thresholds. Furthermore, these CO levels are anticipated to drop quickly outside the exhaust louvers due to dispersion of CO in the atmosphere. Other mechanical systems are located above 150 feet above grade and will meet all applicable emission standards.

4.6.2 WIND

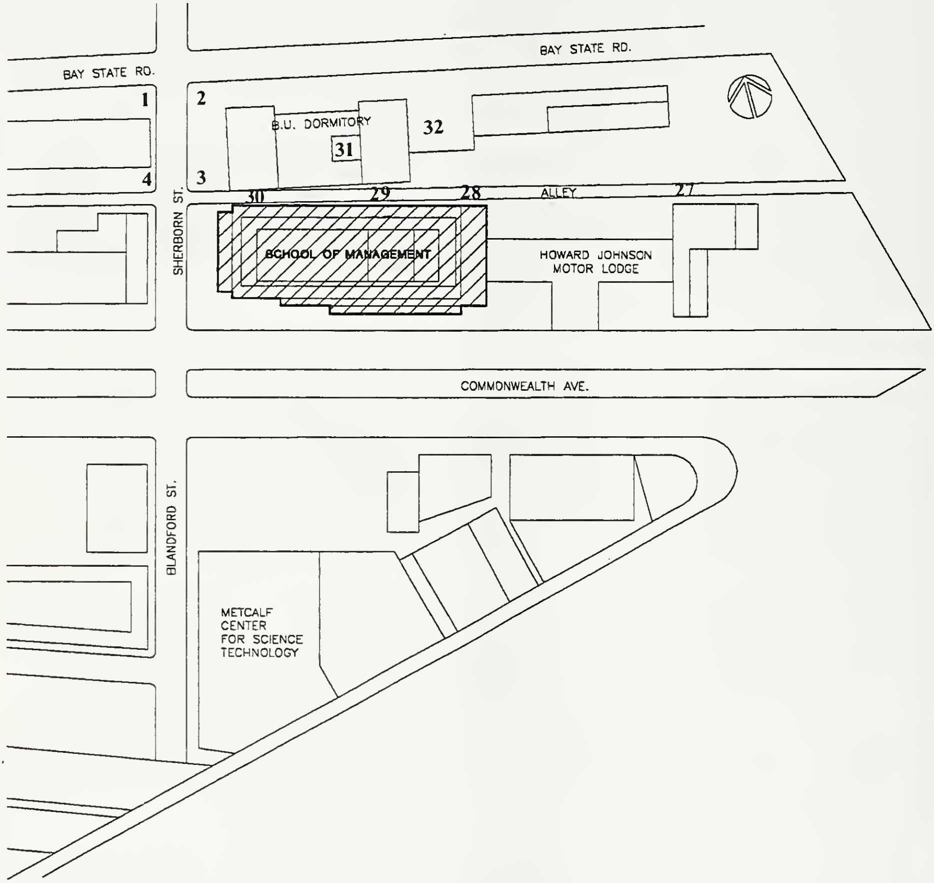
A qualitative wind analysis was initially conducted for the ten story Build condition which indicated that the historic district would not be adversely impacted by the Project. Subsequently, quantitative analyses of potential wind impacts were conducted for 34 locations around the Project site in accordance with the BRA wind criteria guidelines for the No-Build and nine story build alternatives. Ten of these locations were situated within the historic district along Sherborn Street, the alley, and the Boston University dormitory (see Figure 4-21).

The BRA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BRA wind design guidance criterion states that an effective gust velocity (mean hourly wind speed +1.5 times the root-mean-square wind speed) exceeded 1 percent of the time should not exceed 31 mph. The second set of criteria used by the BRA to determine the acceptability of specific locations is derived from the Melbourne criteria. These criteria are used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking. The criteria measured according to mean wind speeds are essentially as follows:

Table 4-1 BRA Mean Wind Criteria*

Dangerous Conditions	>27
Uncomfortable for Walking	>19 and ≤27
Comfortable for Walking	>15 and ≤19
Comfortable for Standing	>12 and ≤15
Comfortable for Sitting	≤12

* Mean wind speed (mph) exceeded 1 percent of the time. Based on Melbourne wind criteria.



Orientation Plan - Historic District Wind Sensor Locations

Prepared By:
Fort Point Associates

Figure 4-21

Assessment of Mean Wind Speeds

The findings of the wind analyses for locations within the historic district are summarized below. The full wind analysis is provided in Appendix C.

Sherborn Street

No-Build. Under No-Build conditions, the wind climate along Sherborn Street was suitable for sitting, standing, or walking at three of the four locations during the fall, spring, and annually. All four locations were comfortable for walking or better during the summer months. Uncomfortable wind conditions for walking occurred at Location 3 during the spring, fall, winter, and annually. Wind speeds uncomfortable for walking occurred at Location 1 in the winter.

Build. The Build condition produced improved seasonal and annual wind comfort levels when compared to the No-Build condition. During the spring, summer, fall, and annually, all four locations were suitable for sitting, standing or walking. The wind conditions within the Bay State Road Historic District are improved under the Build condition (i.e. Locations 1, 2, 3 and 4), in particular, Location 3 at the northeast corner of Sherborn Street and the private alley.

Table 4-2 presents the results of the wind analysis for the four locations studied along Sherborn Street in the historic district.

Table 4-2 Sherborn Street Wind Conditions: Number of Locations Suitable for Sitting, Standing, or Walking*

Season	No-Build	Build
Annual	3	4
Spring	3	4
Summer	4	4
Fall	3	4
Winter	2	4

* The four locations within the historic district are: Locations 1 through 4.

Alley

No Build. Under the No-Build condition, the wind environment was appropriate for sitting, standing, or walking at all four test locations, seasonally and annually.

Build. The Build condition was predicted to produce wind conditions similar to the No-Build condition at Locations 27 and 28 with increased wind speeds at Locations 29 and 30. The increase in wind velocity is the result of the channeling of winds between the Boston University dormitory and the new School of Management. The increased wind speeds were still well within acceptable limits of pedestrian comfort.

Table 4-3 presents the results of the wind analysis for the four locations studied along the alley.

Table 4-3 Alley Wind Conditions: Number of Locations Suitable for Sitting, Standing, or Walking*

Season	No-Build	Build
Annual	4	4
Spring	4	4
Summer	4	4
Fall	4	4
Winter	4	4

* Four locations were tested at the Alley for both study configurations: Locations 27 through 30.

Boston University Dormitory

No Build. Both locations analyzed registered wind speeds comfortable for either sitting or standing on a seasonal and annual basis.

Build. Within this section of the Bay State Road Historic District, wind conditions marginally improved over the No-Build condition and are well suited for the area's intended pedestrian use. The seasonal and annual wind conditions in the interior courtyard (Location 31) became comfortable for sitting. Wind speeds suitable for sitting occurred at Location 32 during the spring, summer, fall and annually. In the winter, the wind speeds were suitable for standing.

Table 4-4 presents the results of the wind analysis for the two locations studied at the Boston University dormitory.

Table 4-4 Boston University Dormitory Wind Conditions: Number of Locations Suitable for Sitting, Standing, or Walking*

Season	No-Build	Build
Annual	2	2
Spring	2	2
Summer	2	2
Fall	2	2
Winter	2	2

* Two locations were tested at the Boston University dormitory for both study configurations: Locations 31 and 32.

Assessment of Effective Gust Speeds

A detailed area by area discussion of the effective gust conditions is not presented in the wind analysis since all but one location within the historic district meet the BRA criteria under the No-Build conditions. Location 3 fails the criteria during the winter season and is borderline during the spring and annually. All areas and locations under the Build condition meet the BRA criteria with substantial improvement noted along Sherborn Street including Location 3 in the historic district. Table 4-5 presents the results of the wind analysis of effective gust for all locations studied in the District.

Table 4-5 Number of Locations Meeting the Effective Gust Criterion*

Season	No-Build	Build
Annual	9	10
Spring	10	10
Summer	10	10
Fall	10	10
Winter	9	10

* Ten locations are in the historic district.

Overall, the Project will have a very positive impact on the local wind conditions over the present conditions (No-Build) especially along Sherborn Street within the historic district. Wind speeds increase in the alley but remain within the BRA acceptable comfort ranges. The test results indicate there were no locations which exceed the BRA effective gust criteria within the District (see Appendix C). Since wind conditions in the District would not be adversely impacted with the nine or ten story alternatives, no additional analysis was deemed necessary for the B-4 zoning alternative.

4.6.3 SHADOW

A shadow study was conducted in accordance with Boston Redevelopment Authority guidelines for 9:00 AM, noon, and 3:00 PM at the vernal Equinox, summer solstice, autumnal equinox, and winter solstice for both the nine and ten story alternatives. An analysis of the B-4 zoning alternative is included for the winter solstice condition, since this is the only time of year significant differences would be noticed.

Table 4-6 identifies the dates and times for which the shadow conditions were simulated. The dates correspond to the vernal equinox, summer solstice, autumnal equinox and the winter solstice. The times listed are Eastern Standard Time (EST) or Eastern Daylight Time (EDT), whichever is in effect for the respective dates.

Table 4-6
Dates and Times Studied

DATE	TIME
March 21 (EST)	9:00 AM, 12:00 noon, 3:00 PM.
June 21 (EDT)	9:00 AM, 12:00 noon, 3:00 PM
September 21 (EDT)	9:00 AM, 12:00 noon, 3:00 PM
December 21 (EST)	9:00 AM, 12:00 noon, 3:00 PM

Source: RWDI

In order to properly identify shadow patterns created by the new School of Management, the simulations conducted for this study assume bright sunlight from sunrise to sunset. Landscaping is not considered on the test configurations and the shadow patterns identified are those created by the various structural components of buildings.

The results are included in Figures 4-23 through 4-49. These figures exhibit the simulated shadow conditions anticipated to occur on and around the Project site. Shadows cast by the existing buildings are shown in gray and the shadows created by the Project in light purple-gray. Shadows cast on the Charles River are shown in a darker color, resulting from a gray shadow on blue water. Figure 4-22 is an orientation plan provided for convenience in reviewing the results.

Vernal Equinox/March 21 (Figures 4-23 through 4-28)

Existing Conditions

At 9:00 AM, the existing conditions create shadows along the south side of Bay State Road protruding into the eastern portion of the open space next to the Boston University dormitory and portions of Bay State Road. Wedges of shadow extend across a significant portion of the Bay State Road/Sherborn Street intersection. Shadows are also cast on the southern edge of Storrow Drive and across portions of the alley.

At noon, existing shadows are cast along the south side of Bay State Road which intermittently extend onto and across the street. Shadows touch the southern edge of Storrow Drive. Portions of the alley receive shade at this time. By 3:00 PM, existing conditions cast shadows on most of the south side of Bay State Road extending across the entire street near the dormitory. Shadow is cast across the open space next to the dormitory. The majority of the shadow on this space is cast by the Boston University dormitory itself. The majority of Sherborn Street in the District receives shade. Shadows extend across the southern half of Storrow Drive.

Nine and Ten Story Building Alternatives

At 9:00 AM, additional shadow cast by the ten story alternative for the new School of Management would have been limited to the private alley to the immediate north of the Project site, the intersection of the alley with Sherborn Street, and a small section of the private alley to the west of Sherborn Street. The shadow of the nine story alternative will cover approximately the same area at grade level. The only noticeable differences are the reduced shadow coverage on the roofs of the Boston University dormitory and the buildings at 152 and 154 Bay State Road.

By noon, additional shadow created by the ten story alternative would have been concentrated on the private alley and the Boston University dormitory immediately north of the development site. A portion of the open space to the east of the Boston University dormitory would also experience some shade from the Project. The nine story alternative will reduce the Project's impact in the area between Bay State Road and the Boston University dormitory and somewhat on the open space to the east of the dormitory.

By 3:00 PM, the ten story alternative would have added some shade to the small open space immediately east of the Boston University dormitory. Additional shadow cast by the ten story alternative would reach the south sides, and roofs, of some existing structures to the east of the Boston University dormitory. The shadow of the nine story alternative will cover a similar area at grade level. However, there will be a reduction in the shadow coverage on Bay State Road and on the roofs of the existing row of houses to the east of the dormitory.

Bay State Road will not experience a significant increase in shadows from either the nine or ten story project alternative at this time of year given the extent of existing shadows.

Summer Solstice/June 21 (Figures 4-29 through 4-34)

Existing Conditions

Existing conditions create shadows across Sherborn Street and on the open space next to the Boston University dormitory at 9:00 AM. Shadows remain very close to their respective buildings at noon with the Boston University dormitory shadow extending onto a portion of the south side of Bay State Road sidewalks. By 3:00 PM, shadows extend along the west side of Sherborn Street and intermittently along the south side along Bay State Road.

Nine and Ten Story Building Alternatives

During this time of year, additional shadow from the ten story alternative would touch only those portions of Sherborn Street and the private alley adjacent to the study site and some buildings in the immediate vicinity. A portion of Sherborn Street outside the District would be in shade during the morning. By noon, the only impact of the additional shadow would be on the Project site; the private alley immediately to the north and a portion of the southern face of the Boston

University dormitory. By 3:00 PM, Sherborn Street would be predominantly sunlit, whereas a portion of the private alley would be in shade. At this time, the only buildings with additional shadow would be the dormitory and a small portion of the Howard Johnson's Motor Lodge. The open space immediately east of the Boston University dormitory would be sunlit for most of the day. The majority of shadow reaching this open space area is cast by the existing dormitory.

The nine story alternative will result in a slightly reduced area of shadow coverage on the roof of the building at 605 Commonwealth Avenue outside the District at 9:00 AM, and allow sunlight to reach the sidewalk on the east side of Sherborn Street at 12:00 noon. This alternative will slightly reduce the area of shadow coverage on the north side of the alley and on the open space east of the dormitory.

Autumnal Equinox/September 21 (Figures 4-35 through 4-40)

Existing Conditions

The shadow conditions during the Autumnal Equinox will be similar to those described for the Vernal Equinox. The existing shadows cast at 9:00 AM extend along the south side of Bay State Road protruding onto and across Sherborn Street at this intersection and closer to Storrow Drive. A significant portion of the open space next to the Boston University dormitory is in shadow. Shadows extend to the southern edge of Storrow Drive and across portions of the alley. At noon, shadows are evident along the south side of Bay State Road with the Boston University dormitory shadow extending across the road. By 3:00 PM shadows extend to the middle, and across portions of Bay State Road. The west side of Sherborn Street and the western half of the open space next to the dormitory is in shadow. The southern portion of Storrow Drive and portions of the alley are also in shadow.

Nine and Ten Story Building Alternatives

During the morning, additional shadow cast by the ten story building would cover the portion of the private alley immediately north of the study site, the intersection of the private alley and Sherborn Street, and a portion of the alley to the west of Sherborn Street. The south facade of some of the buildings along the private alley west of Sherborn Street and south of Bay State Road would be affected by existing and additional shadows. The shadow from the nine story alternative will be less. It will extend west along the private alley to 168 Bay State Road and cover a small portion of the roofs of the Boston University dormitory, 605 Commonwealth Avenue, 152 and 154 Bay State Road and 605 Commonwealth Avenue outside the historic district.

By noon, additional shadow from the ten story alternative would cover a portion of the private alley immediately north of the study site and a portion of the open space to the east of the Boston University dormitory. The shadow from the nine story alternative will be similar except there will be slightly reduced coverage along Sherborn Street and on the dormitory roof.

By 3:00 PM, additional shadow from the ten story alternative would reach the roof and south face of some buildings east of the open space and south of Bay State Road. This shadow would have an insignificant impact on Bay State Road itself and the areas farther north. With respect to the open space east of the Boston University dormitory, there would be a combined shadow impact created by the existing Boston University dormitory and the ten story alternative. The shadow from the nine story alternative will not extend to Bay State Road and will cover a smaller area of the roofs and grounds of the buildings to the east of the dormitory.

Winter Solstice/December 21 (Figures 4-41 through 4-49)

Existing Conditions

The longest shadows of the year occur during the winter solstice when the sun is very low on the horizon. This is the only time of year when shadows from the buildings in the historic district extend across Storrow Drive onto the Charles River Basin. At 9:00 AM existing conditions cause the majority of Bay State Road, Storrow Drive, and the alley to be in shadow. The open space next to the Boston University dormitory is fully shaded. Except for small slivers of light, the majority of Sherborn Street is in shadow at this time. Shadows extend across the southern portion of the riverbank. By noon, shadows have receded from most of the riverbank to Storrow Drive. Shadows extend across major portions of Bay State Road and the alley. By 3:00 PM, Bay State Road, Sherborn Street and Storrow Drive are almost entirely shaded. At this time, shadows currently extend across to the river including major portions of the riverbank. The open space next to the dormitory is half shaded.

Nine and Ten Story Building Alternatives

At 9:00 AM, the shadow from the ten story building would just reach the southern-most portion of the south bank of the Charles River. The largest net increase in shading would occur at the intersection of Sherborn Street and the private alley and a southern portion of the south bank of the Charles River. The roofs of the intervening buildings would also be in shade. There would be some additional shadow along Storrow Drive, however, this would only be a slight increase to the existing shadows affecting this area.

At 9:00 AM, the nine story alternative will create a smaller infill shadow between Storrow Drive and the southern edge of the south bank of the Charles River. This alternative will allow more opportunity for light on this public area than the ten story building. Shadows from the nine story alternative will also cover slightly less area on the east roof of the Boston University dormitory and the buildings between Bay State Road and Storrow Drive.

At noon, the ten story alternative would cast additional shadow on the alley, open space area, and Bay State Road immediately north of the development site. As noted earlier, the majority of Bay

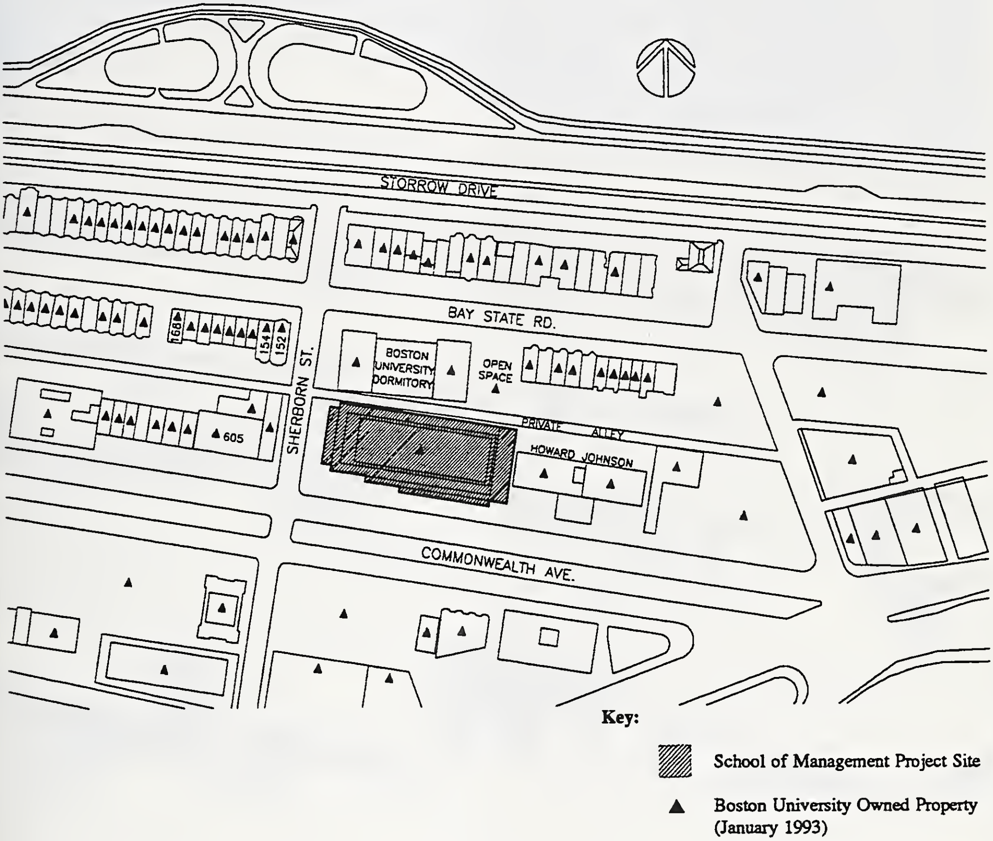
State Road is already in shadow cast by existing buildings. By 3:00 PM, which is approaching sunset for this time of year, the shadow cast by the ten story building would extend northeast onto the river as do shadows from many existing buildings. There would be some additional shadow cast on the roof tops of buildings to the northeast of the new development and in the open space to the east of the Boston University dormitory. At noon, the nine story alternative will shade approximately the same amount at grade as the ten story alternative. However, its shadow will cover fewer and smaller portions of rooftops on the buildings to the east of Sherborn Street between Bay State Road and Storrow Drive. At 3:00 PM, the nine story building will allow a larger band of sunlight to appear between Storrow Drive and the south bank of the River when compared to the ten story alternative.

B-4 Zoning Alternative

The impacts of the B-4 zoning alternative are not significantly different from the nine story project alternative. At 9:00 AM there will be slightly less shadow cast on the tops of buildings on Bay State Road and across Sherborn Street. The shadow from this alternative will create essentially the same shadow as the nine story alternative and will not extend as far onto the riverbank as the ten story building. At noon, a shadow will be cast across Bay State Road in a similar manner to the other alternatives. The shadow will not extend onto as many roofs of buildings on the north side of Bay State Road but will cover more roof area on those that it does reach. Slightly less shadow will be cast along Sherborn Street and the open space next to the Boston University dormitory than with the nine and ten story alternatives. At 3:00 PM, the B-4 zoning alternative shadow will extend across the alley, across the open space adjacent to the Boston University dormitory, across Bay State Road, across the southern riverbank and onto the River. The impact is about the same as the nine but less than the ten story alternative. The shadow width of this alternative will be slightly narrower than the nine story alternative across some building roofs on Bay State Road and the River. The shadow will extend, however, slightly further on to the River.

Shadow Summary

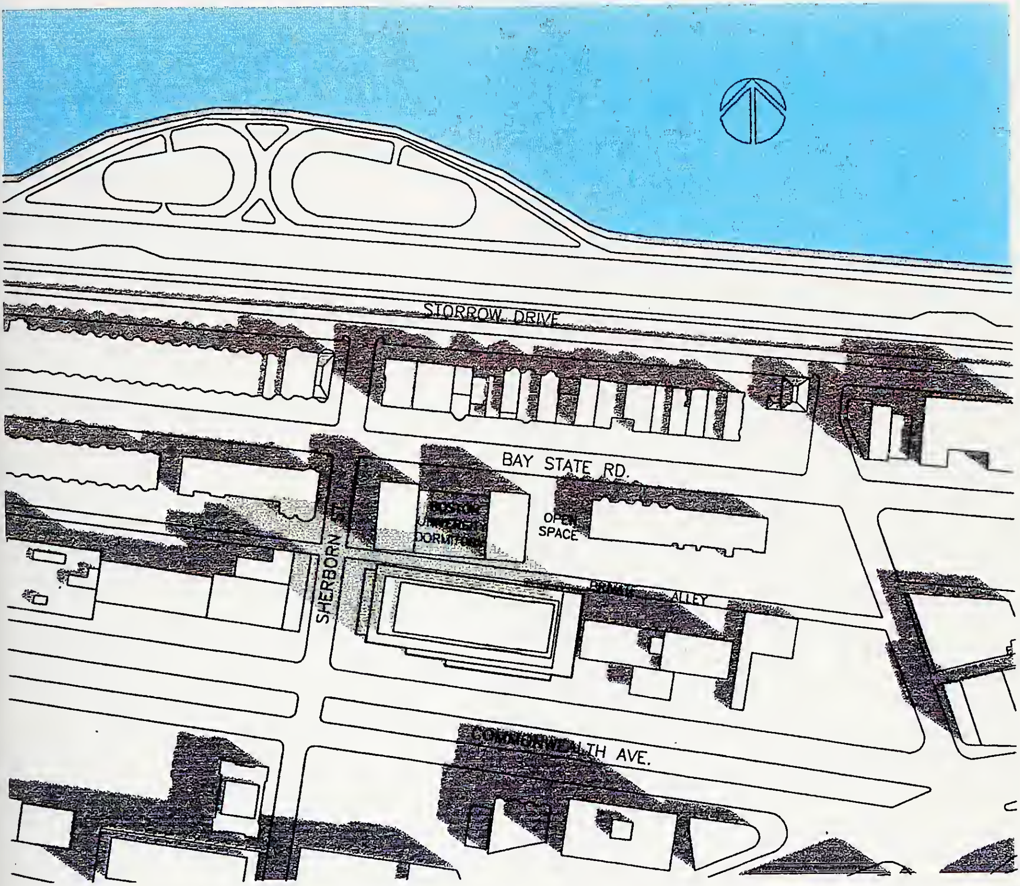
In general, net new shadows cast by both the nine and ten story alternatives of the new School of Management project will have some effect on the immediately surrounding streets, buildings and public areas. The nine story project will have a lesser impact than the ten story alternative on Bay State Road and the south bank of the Charles River. In the morning, the shaded areas typically consist of the private alley north of the study site, the intersection of Sherborn Street and the alley, and the south side of some of the buildings to the northwest of the study site along the alley. In the afternoon, the shaded areas typically consist of portions of the alley to the east of Sherborn Street, the open space to the east of the Boston University dormitory and some of the backs of buildings on Bay State Road. Except for the winter solstice, the greatest impact of shadows from the Project is limited to these areas. Bay State Road will receive some additional shadow on the south side at 3:00 PM during March and September. This shadow primarily affects the roofs and


STORROW DRIVE
BAY STATE RD.
SHERBORN ST.
168
154
152
605
BOSTON UNIVERSITY DORMITORY
OPEN SPACE
PRIVATE ALLEY
HOWARD JOHNSON
COMMONWEALTH AVE.
Key:
▨ School of Management Project Site
▲ Boston University Owned Property (January 1993)

Shadow Orientation Plan

Prepared By:
Rowan Williams Davies & Irwin Inc.

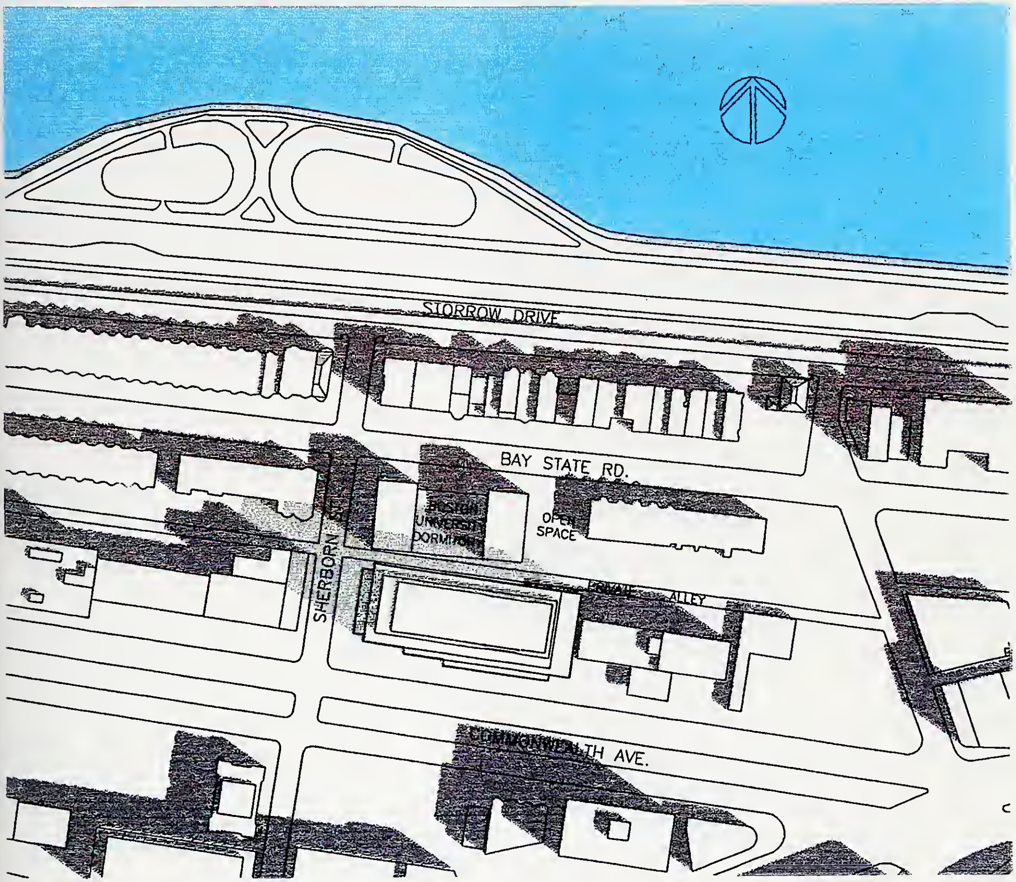
Figure 4-22



Shadow March 21, 9:00 AM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

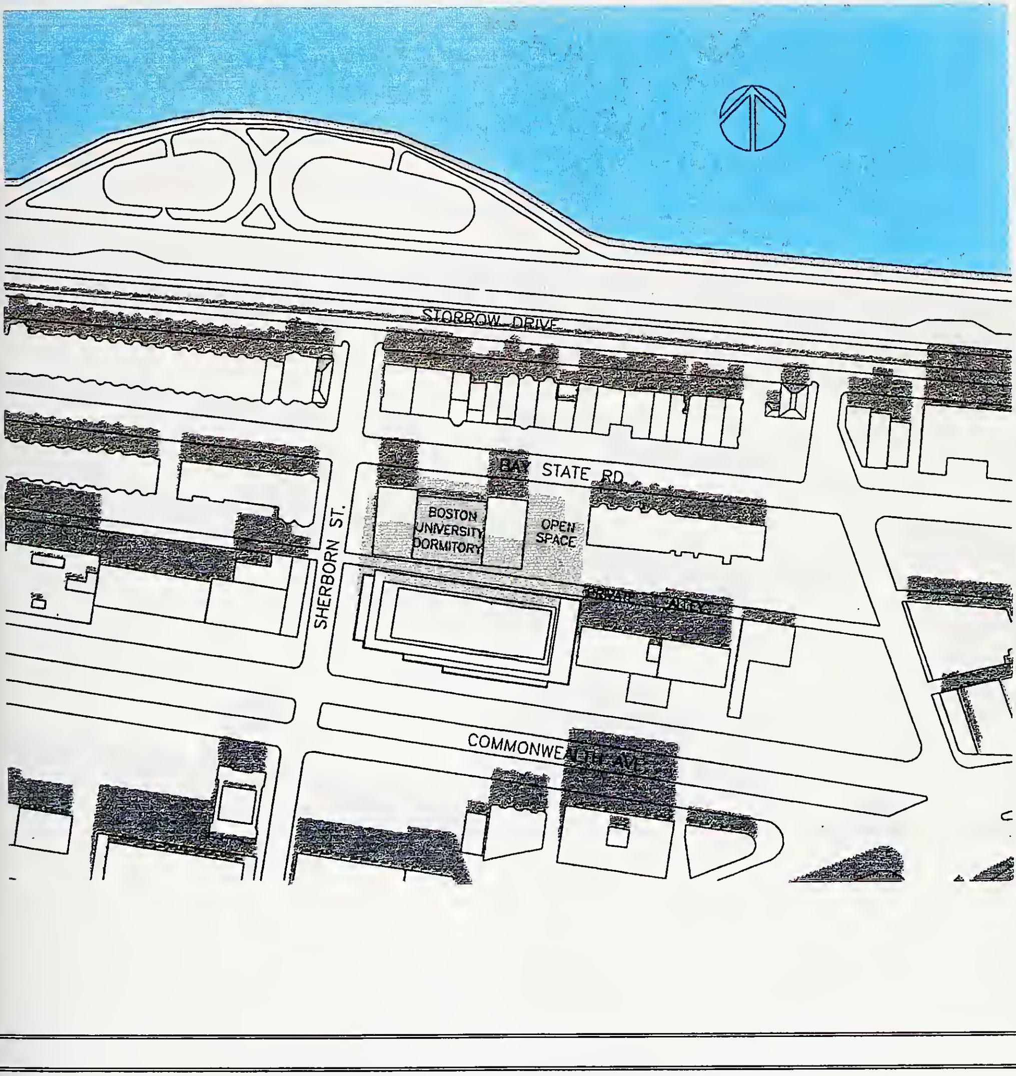
Figure 4-23



Shadow March 21, 9:00 AM (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

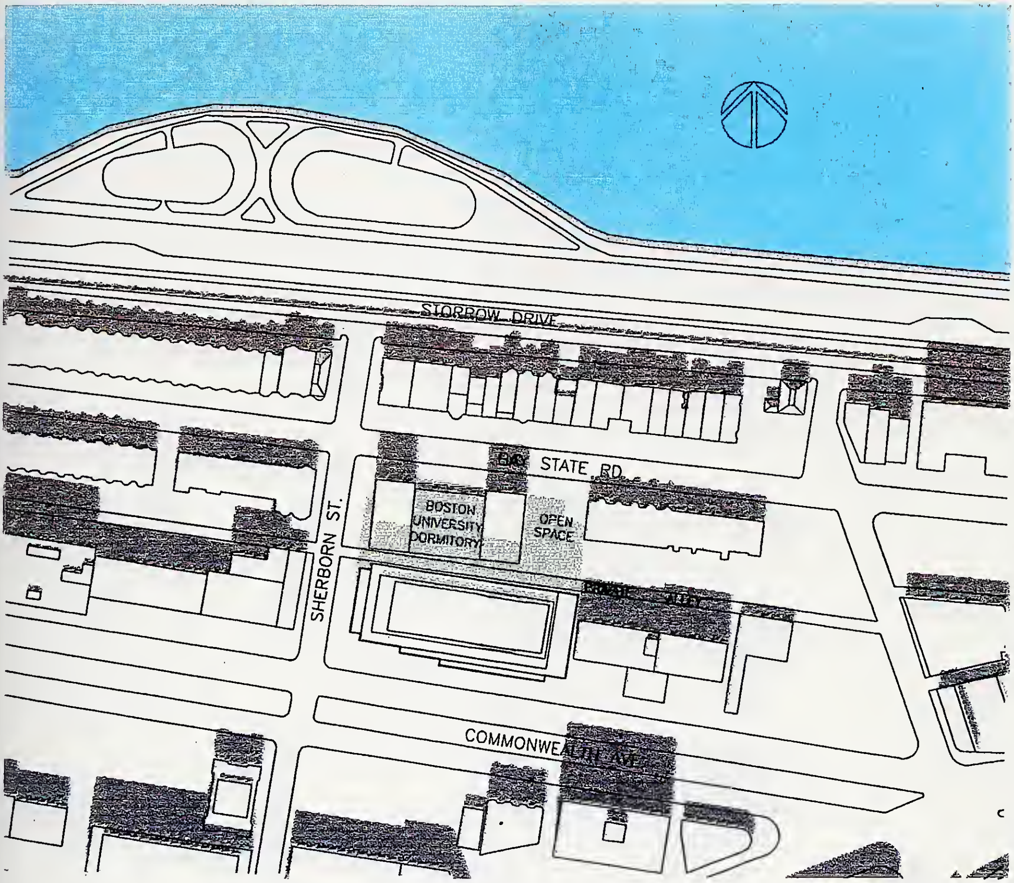
Figure 4-24



Shadow March 21, Noon (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

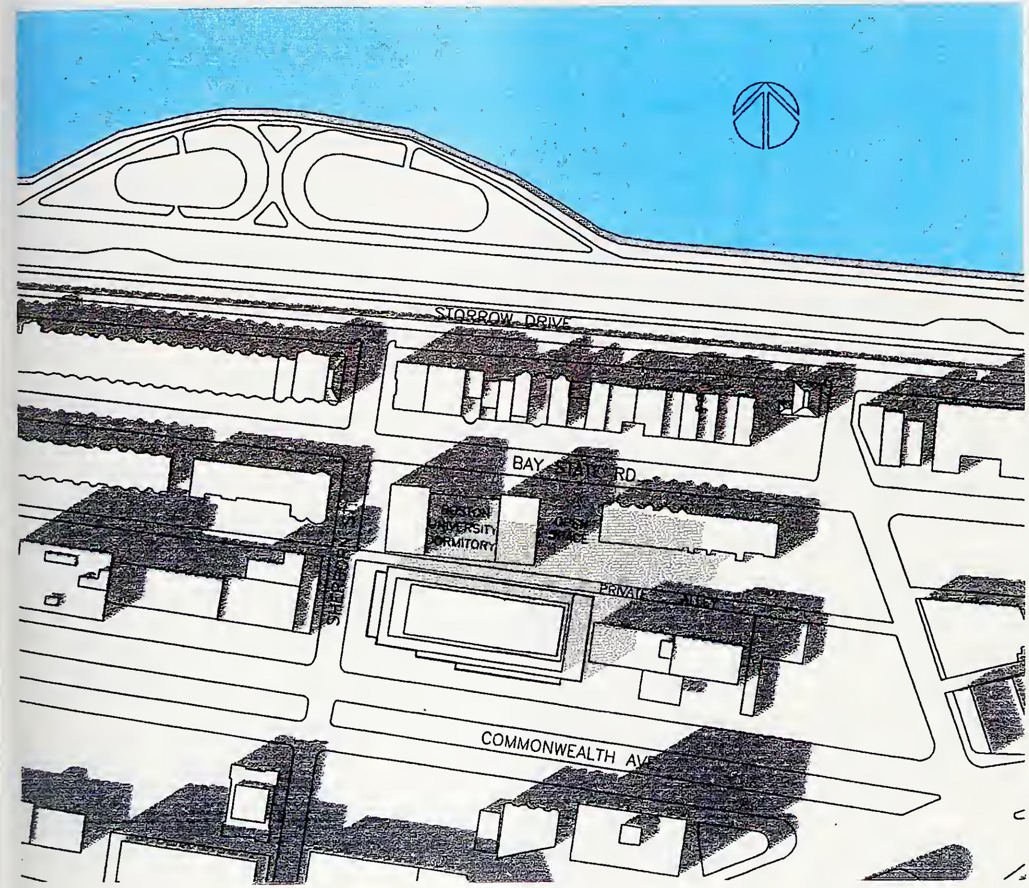
Figure 4-25



Shadow March 21, Noon (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

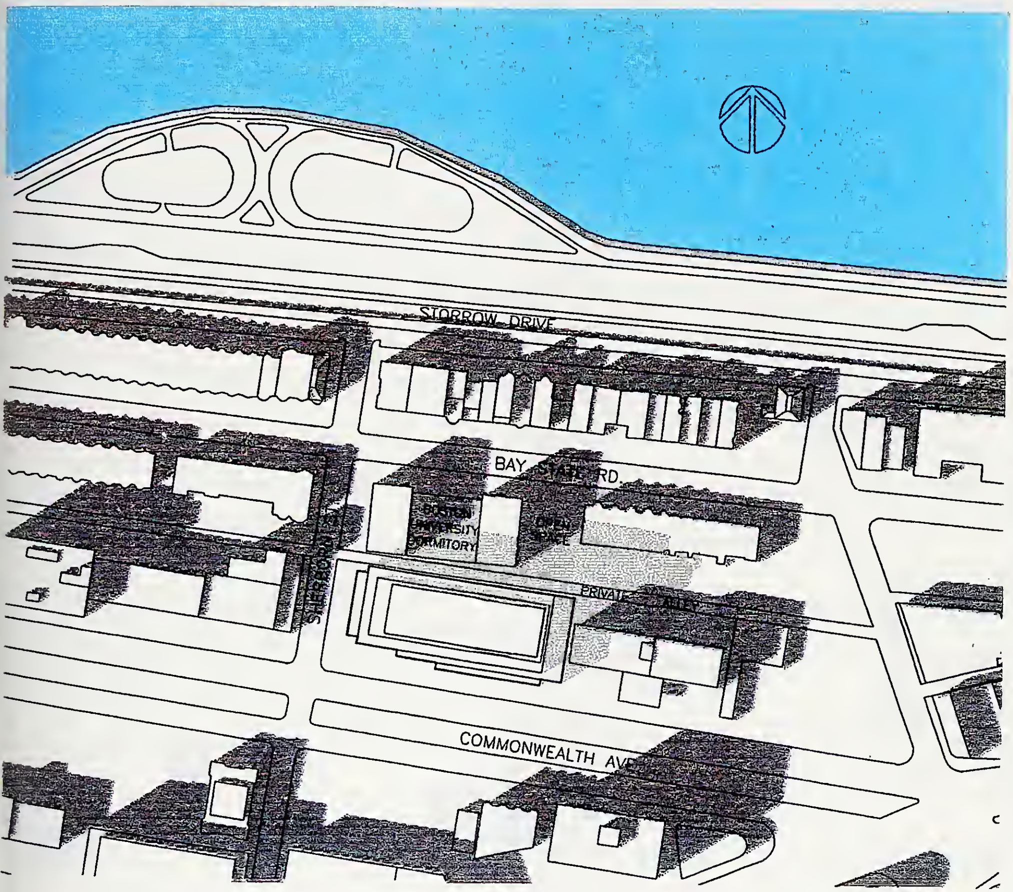
Figure 4-26



Shadow March 21, 3:00 PM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

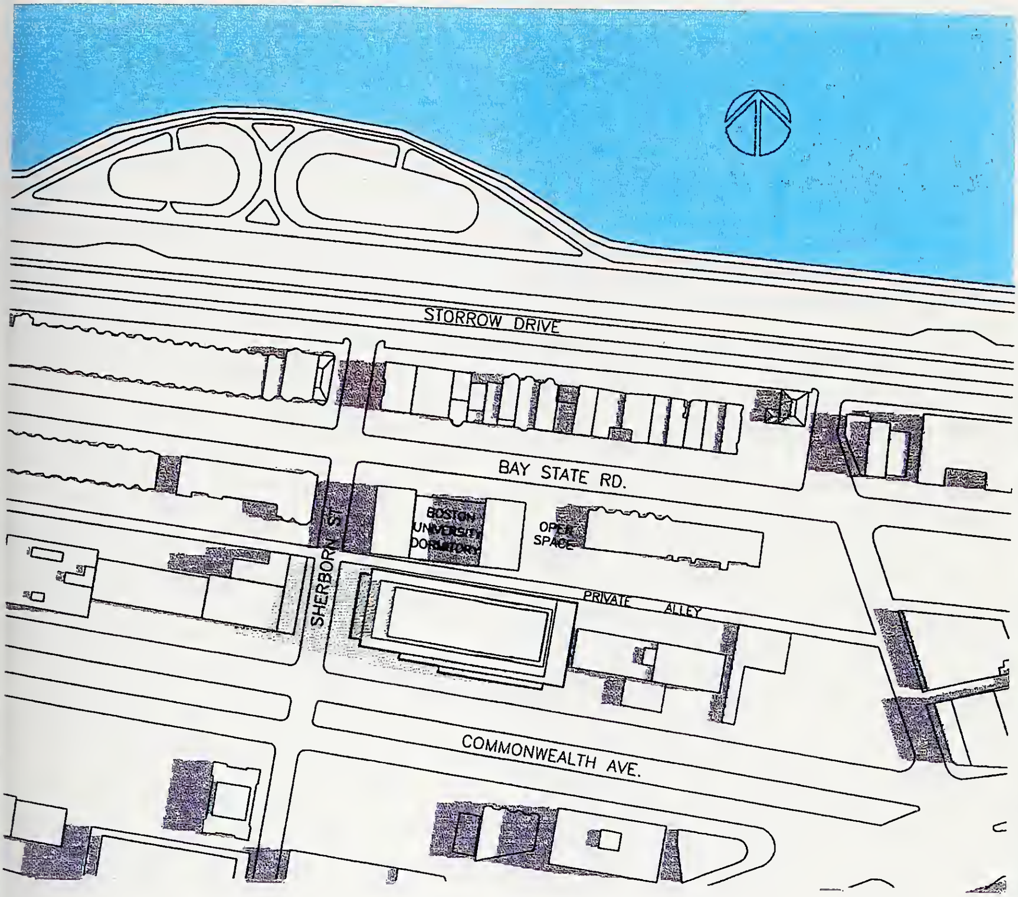
Figure 4-27



Shadow March 21, 3:00 PM (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

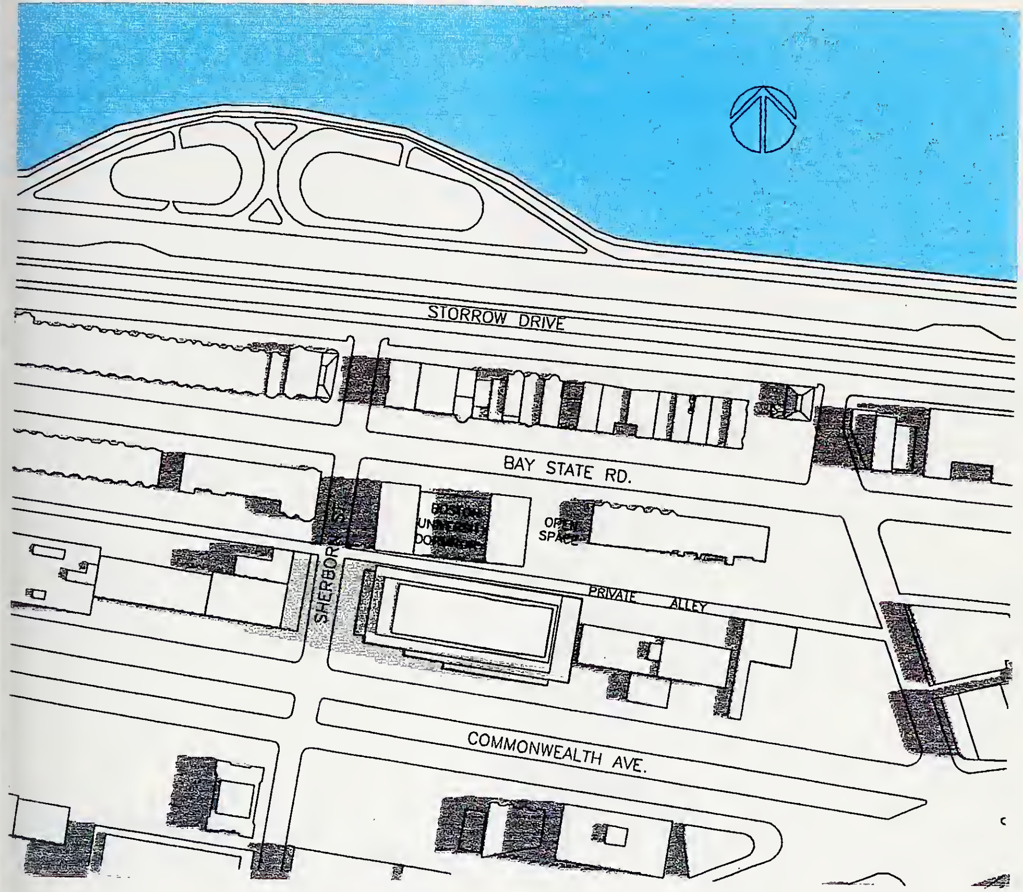
Figure 4-28



Shadow June 21, 9:00 AM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

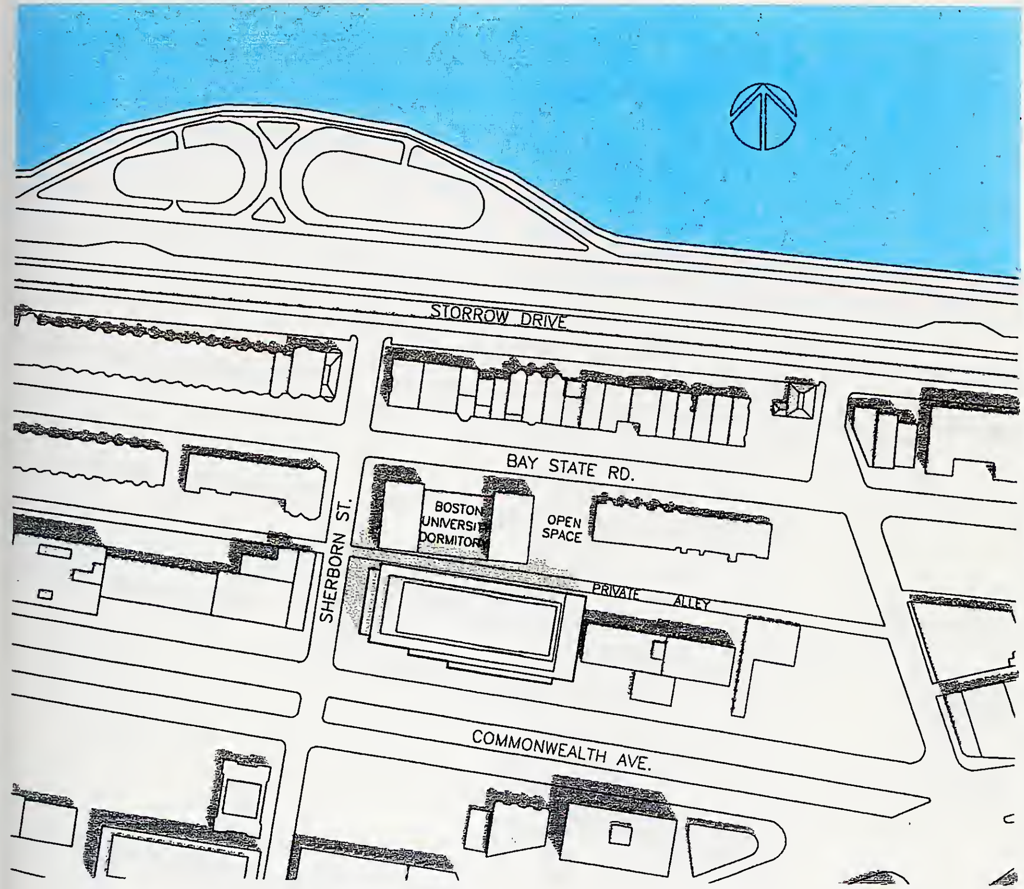
Figure 4-29



Shadow June 21, 9:00 AM (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

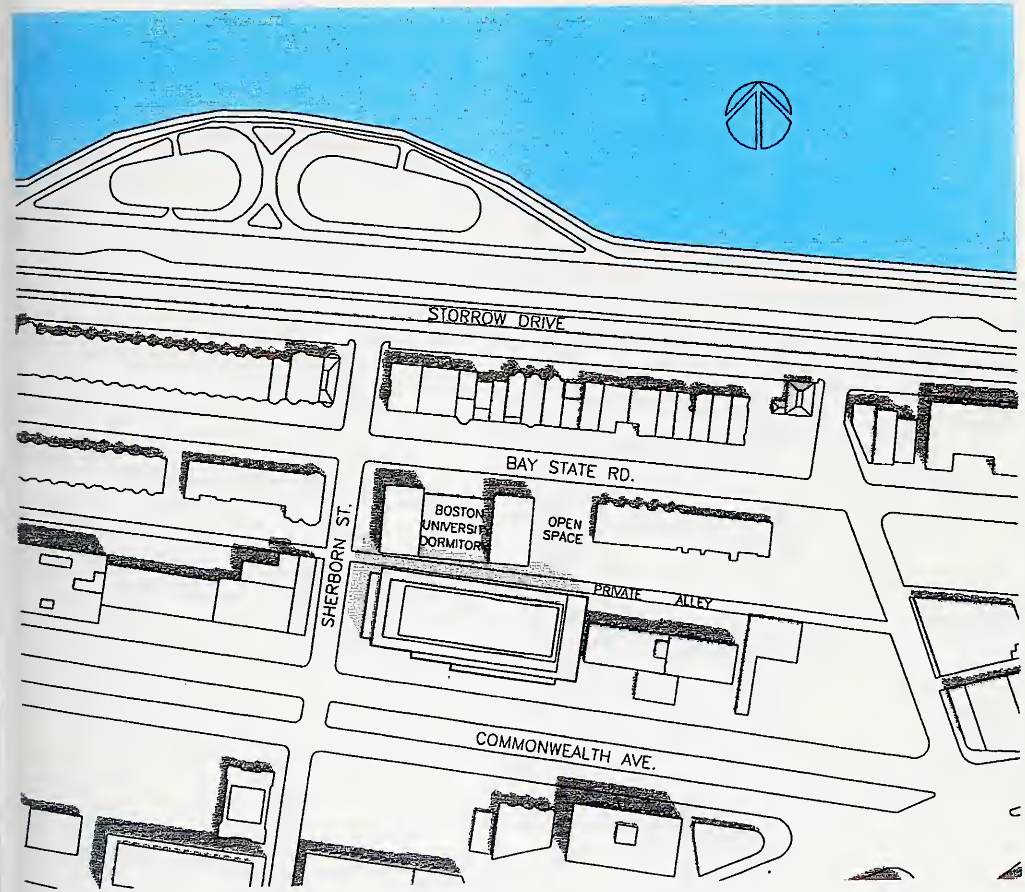
Figure 4-30



Shadow June 21, Noon (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

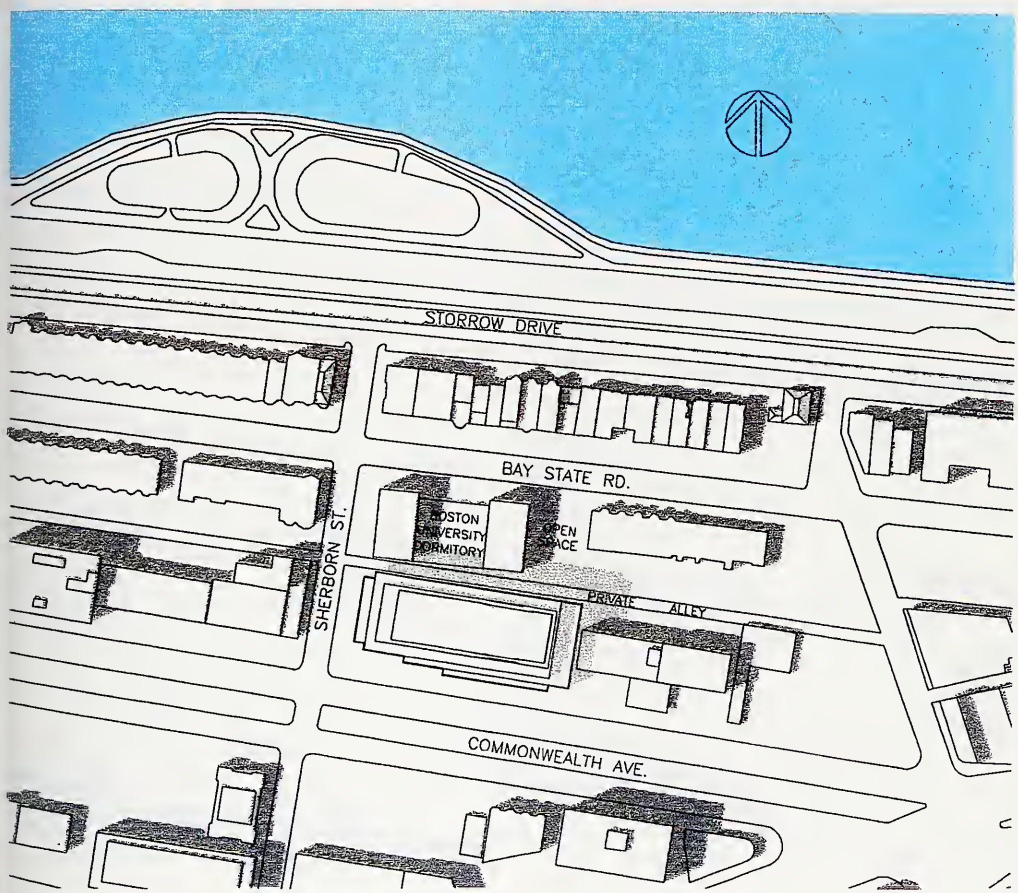
Figure 4-31



Shadow June 21, Noon (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

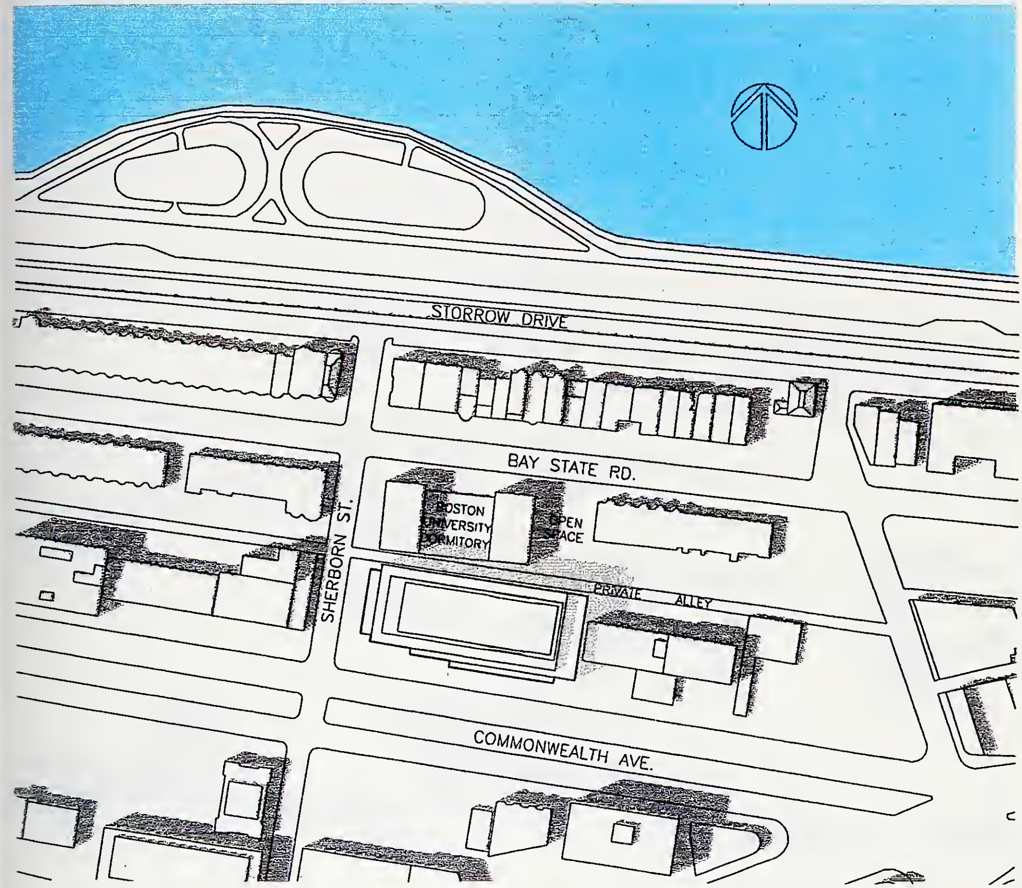
Figure 4-32



Shadow June 21, 3:00 PM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

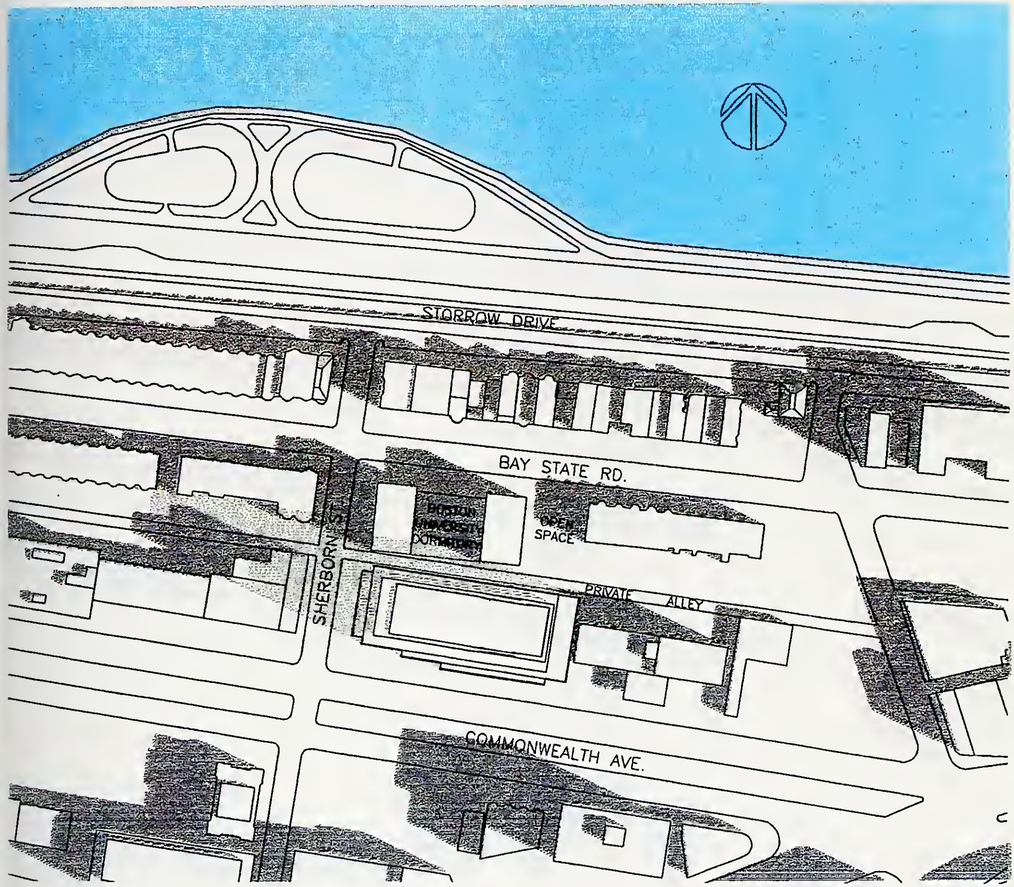
Figure 4-33



Shadow June 21, 3:00 PM (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

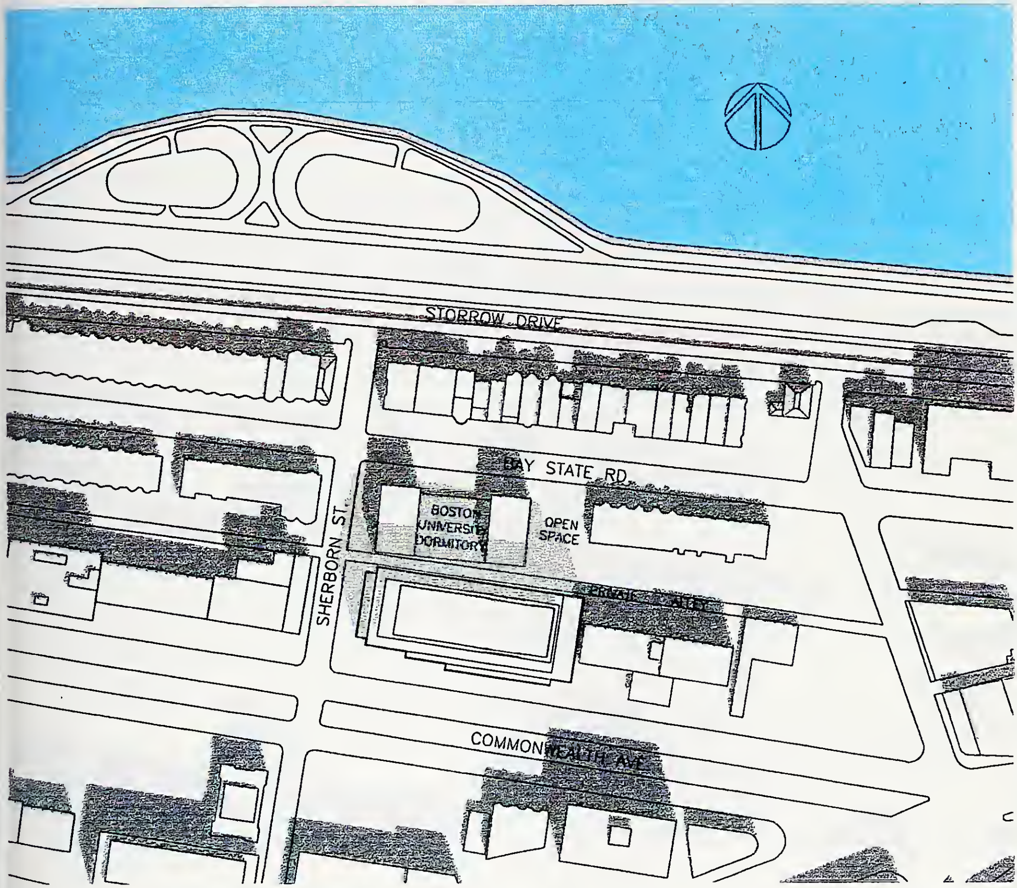
Figure 4-34



Shadow September 21, 9:00 AM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

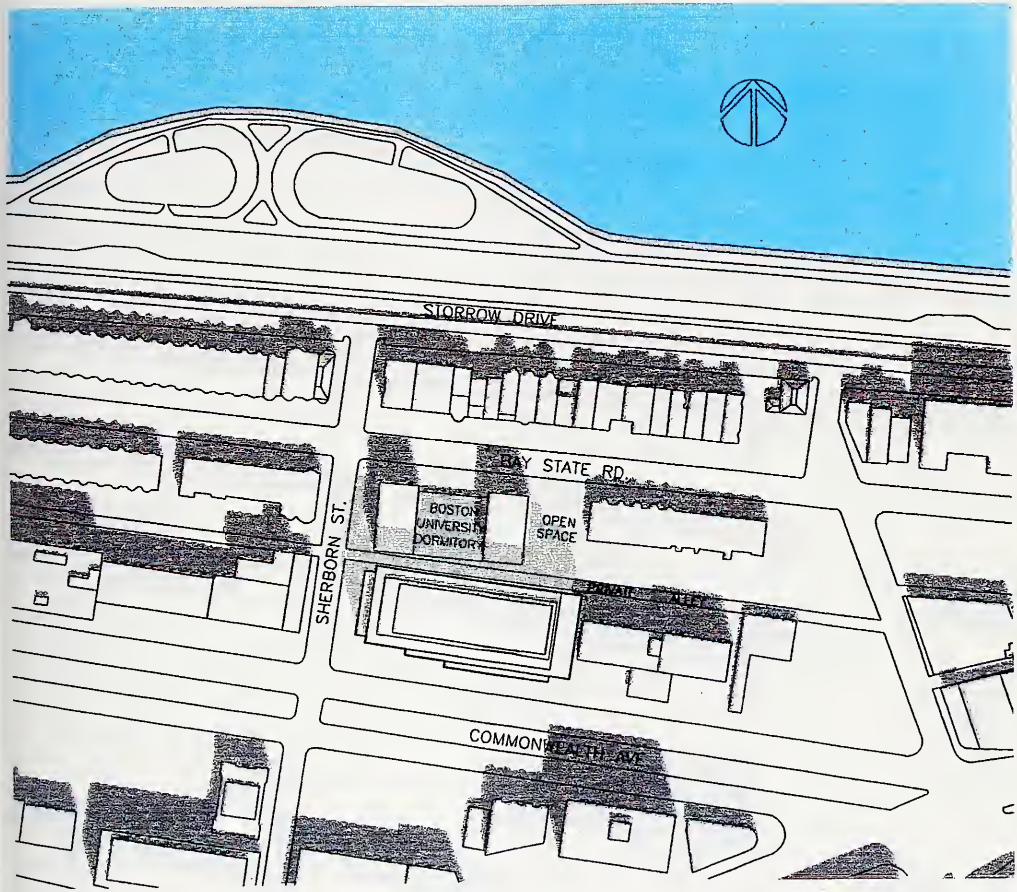
Figure 4-35



Shadow September 21, Noon (10 Story)

repared By:
Rowan Williams Davies & Irwin Inc.

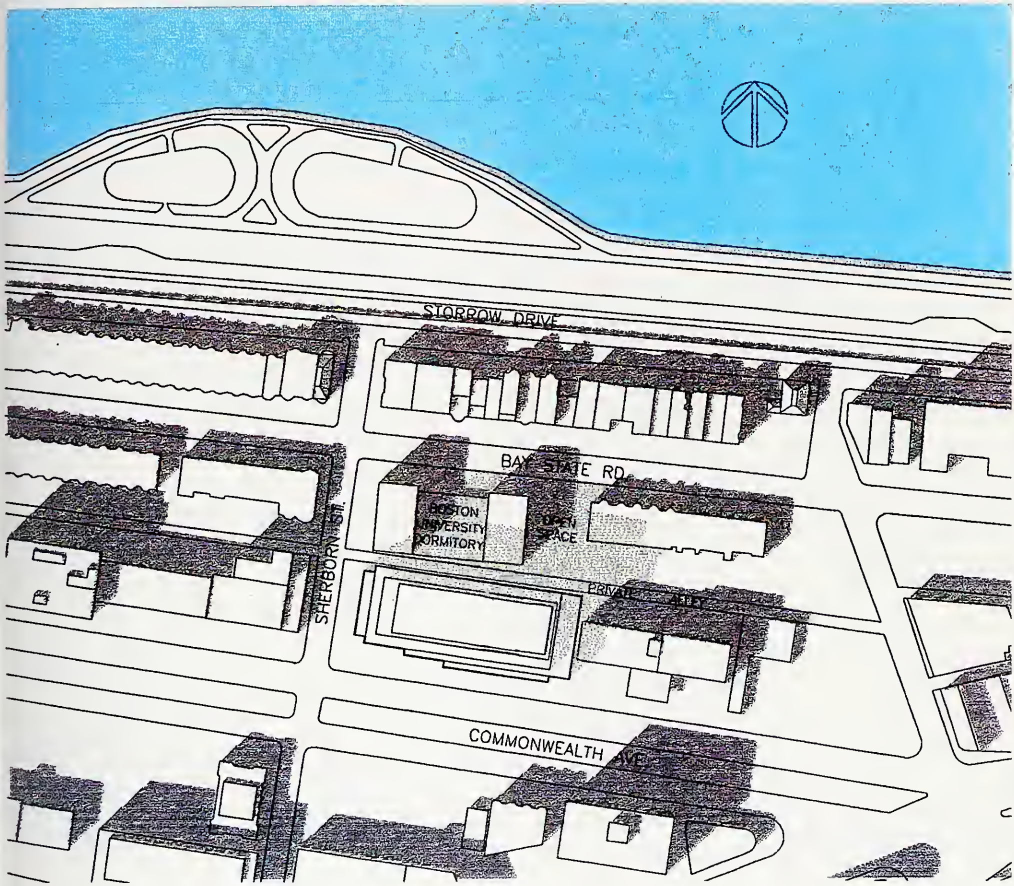
Figure 4-37



Shadow September 21, Noon (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

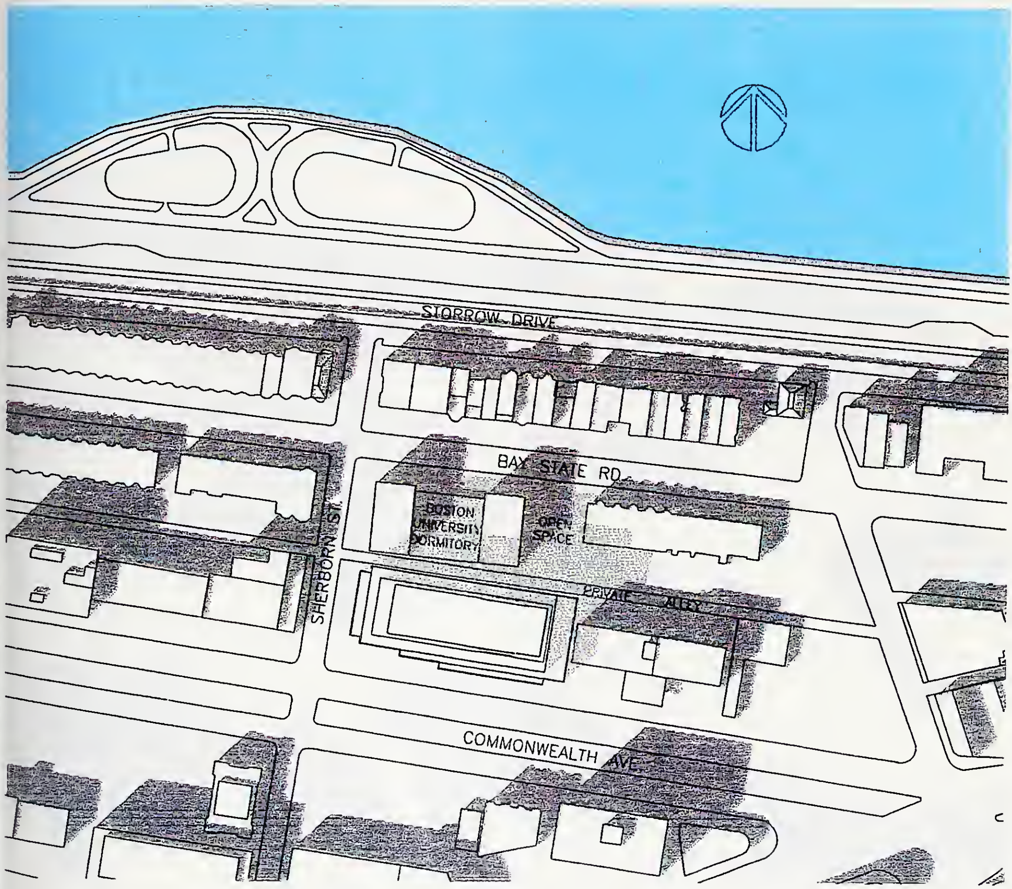
Figure 4-38



Shadow September 21, 3:00 PM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

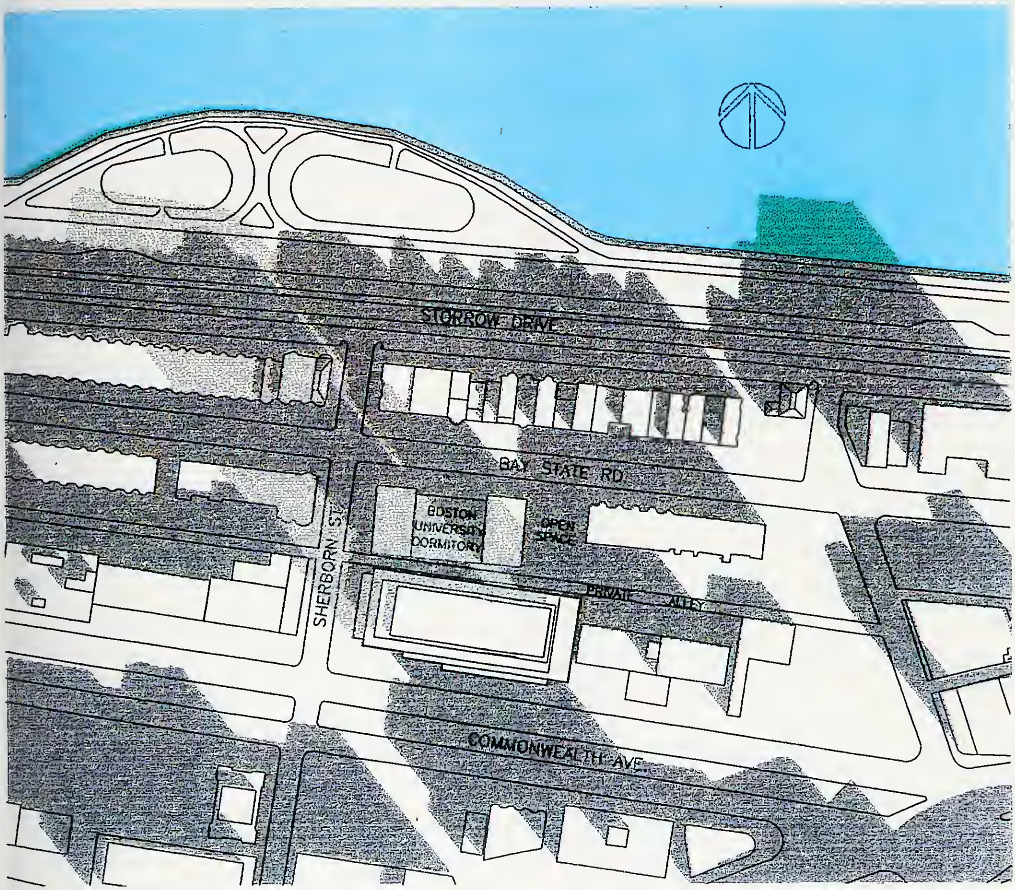
Figure 4-39



Shadow September 21, 3:00 PM (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

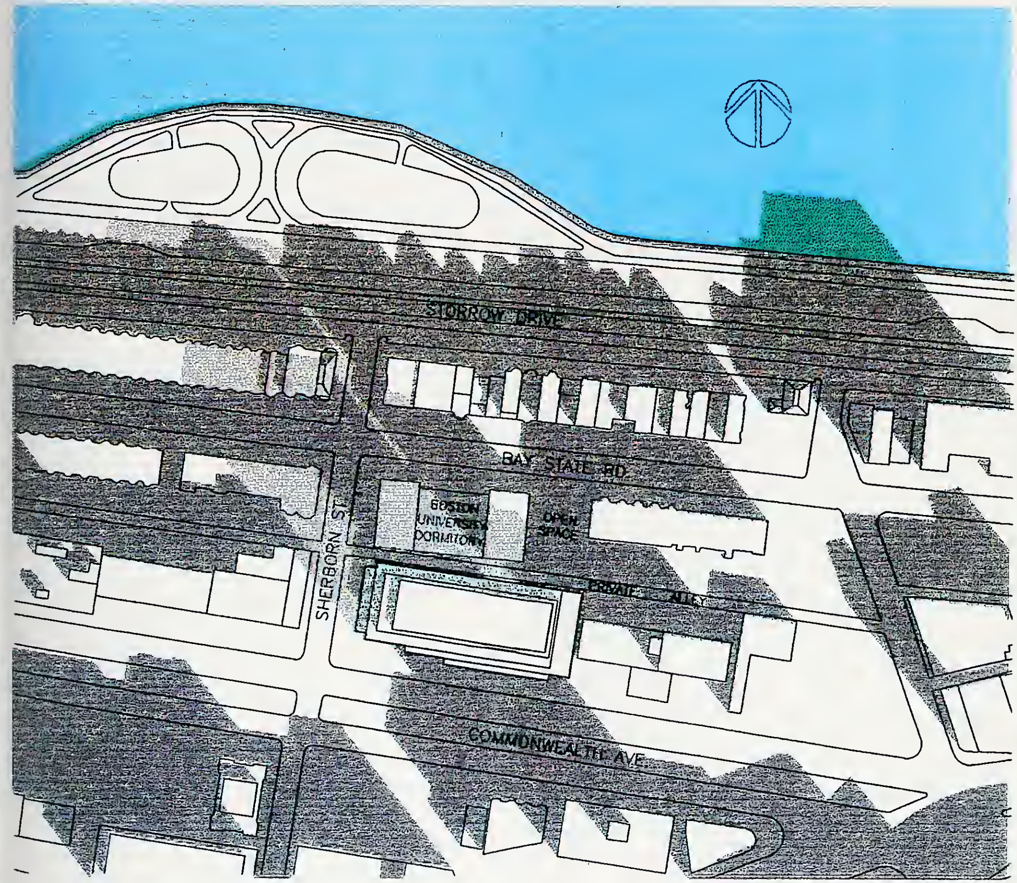
Figure 4-40



Shadow December 21, 9:00 AM (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

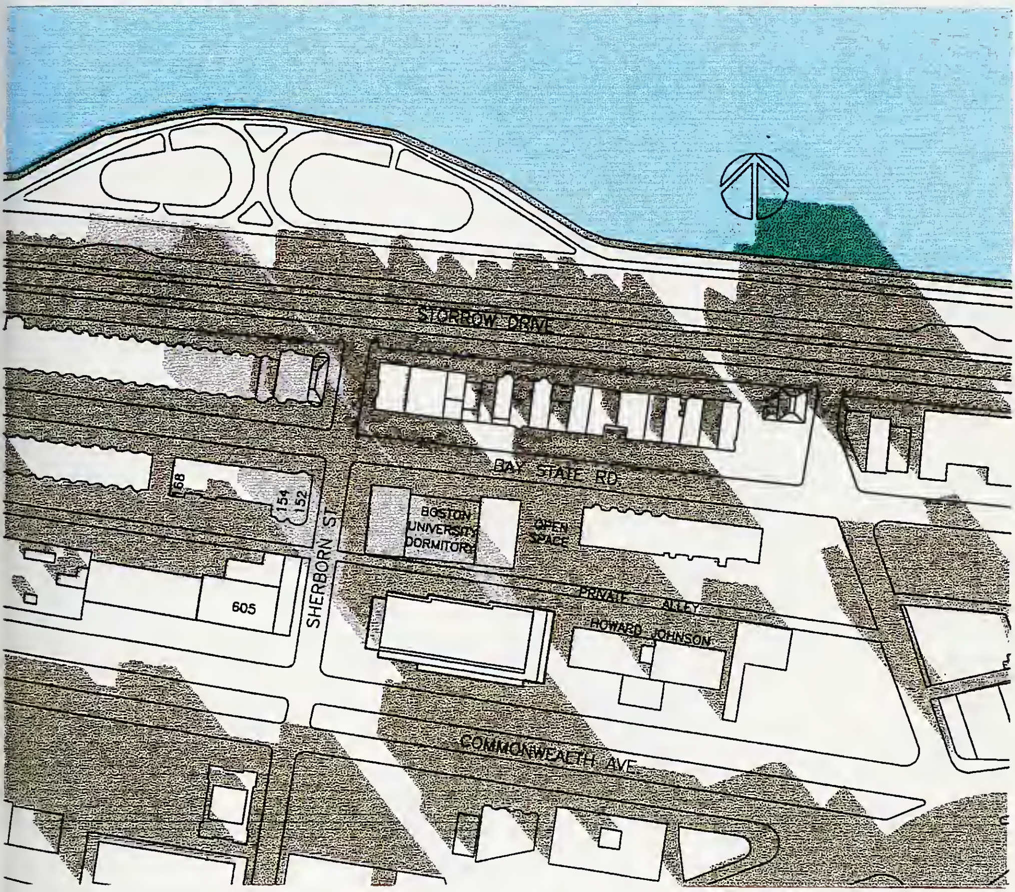
Figure 4-41



Shadow December 21, 9:00 AM (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

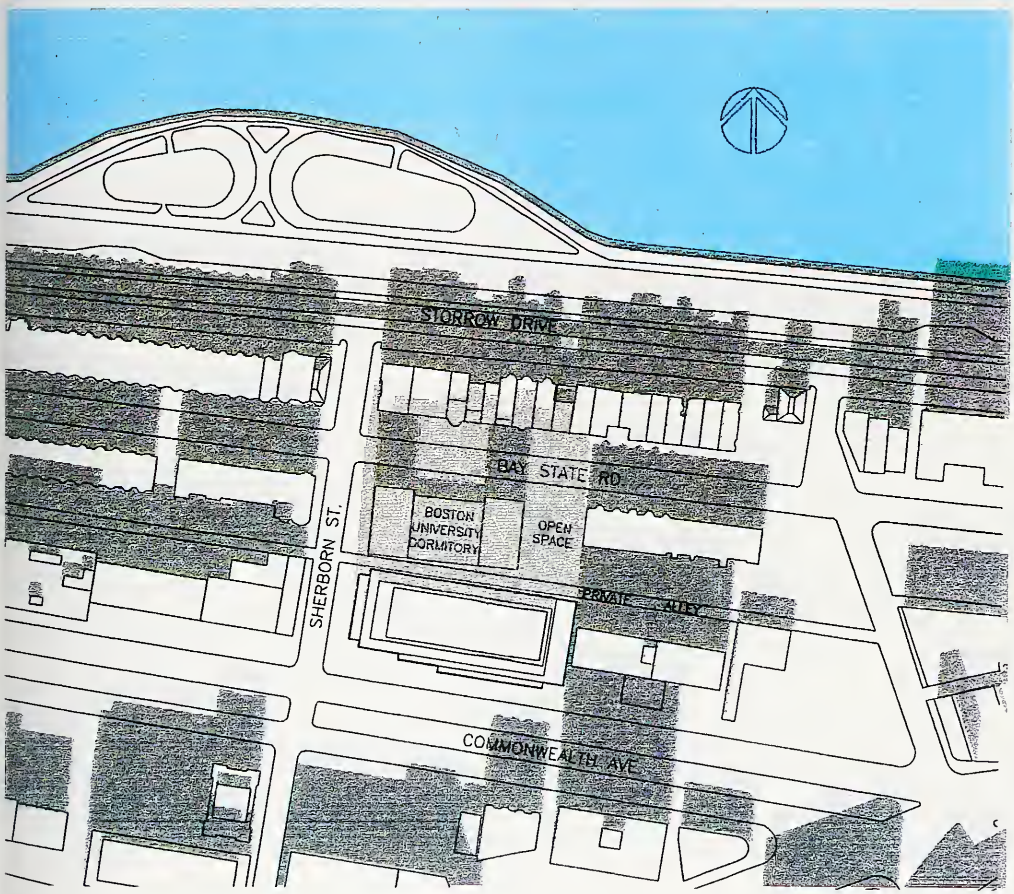
Figure 4-42



Shadow December 21, 9:00 AM (B-4 Zoning)

Prepared By:
Rowan Williams Davies & Irwin Inc.

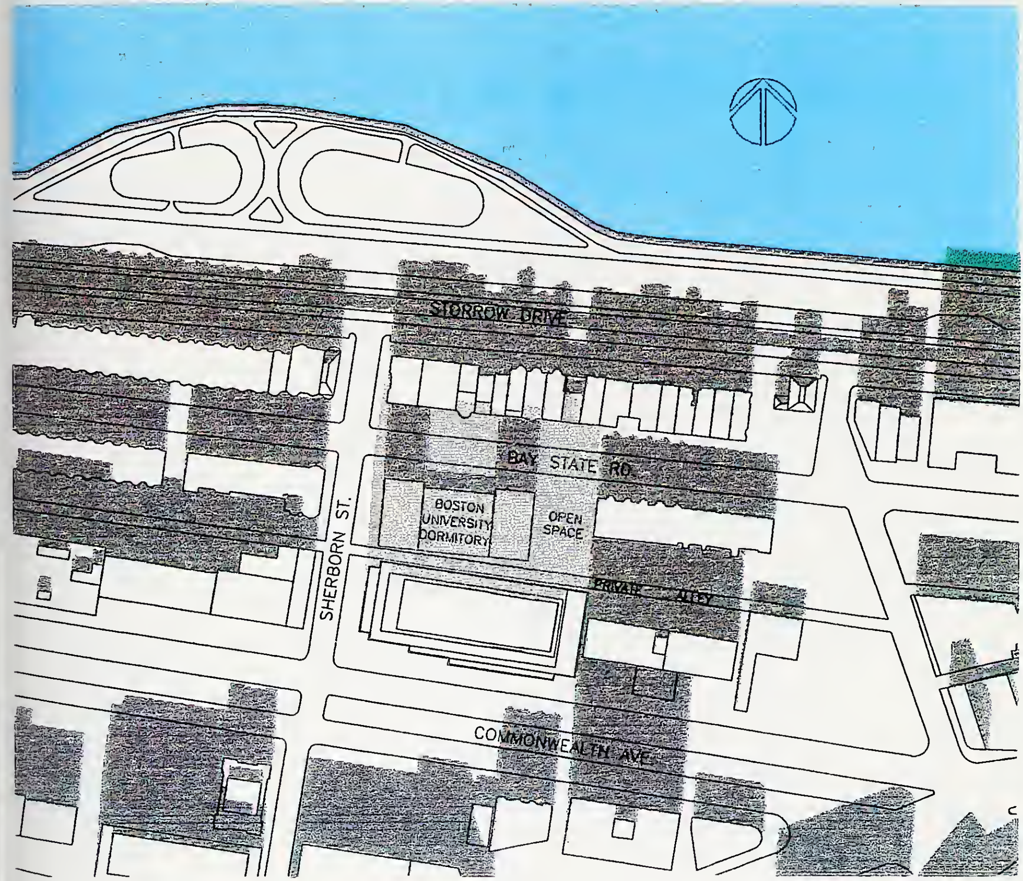
Figure 4-43



Shadow December 21, Noon (10 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

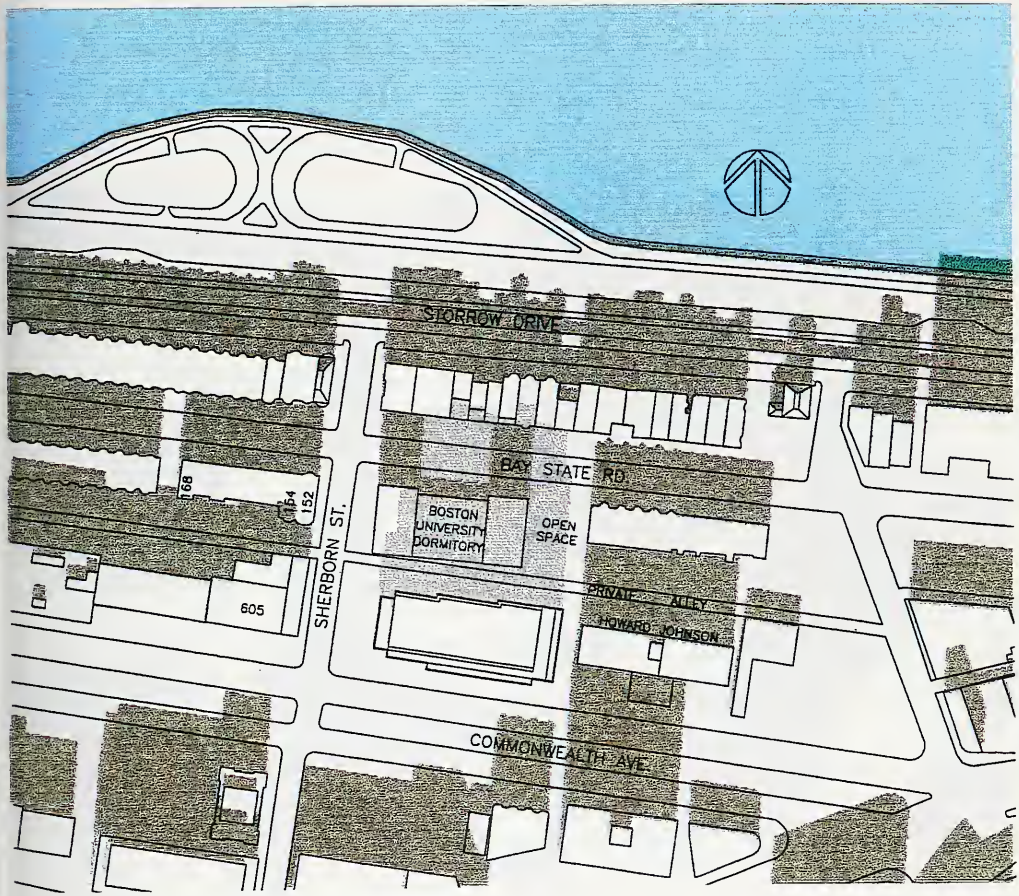
Figure 4-44



Shadow December 21, Noon (9 Story)

Prepared By:
Rowan Williams Davies & Irwin Inc.

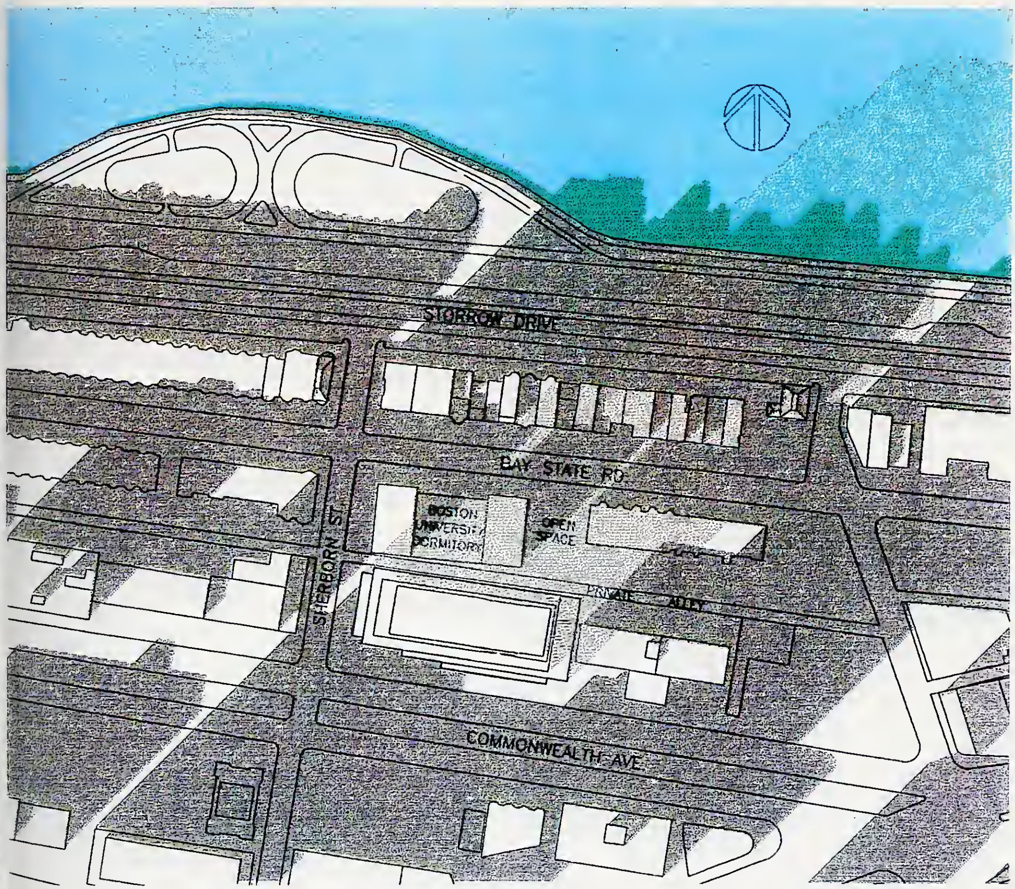
Figure 4-45



Shadow December 21, Noon (B-4 Zoning)

Prepared By:
Rowan Williams Davies & Irwin Inc.

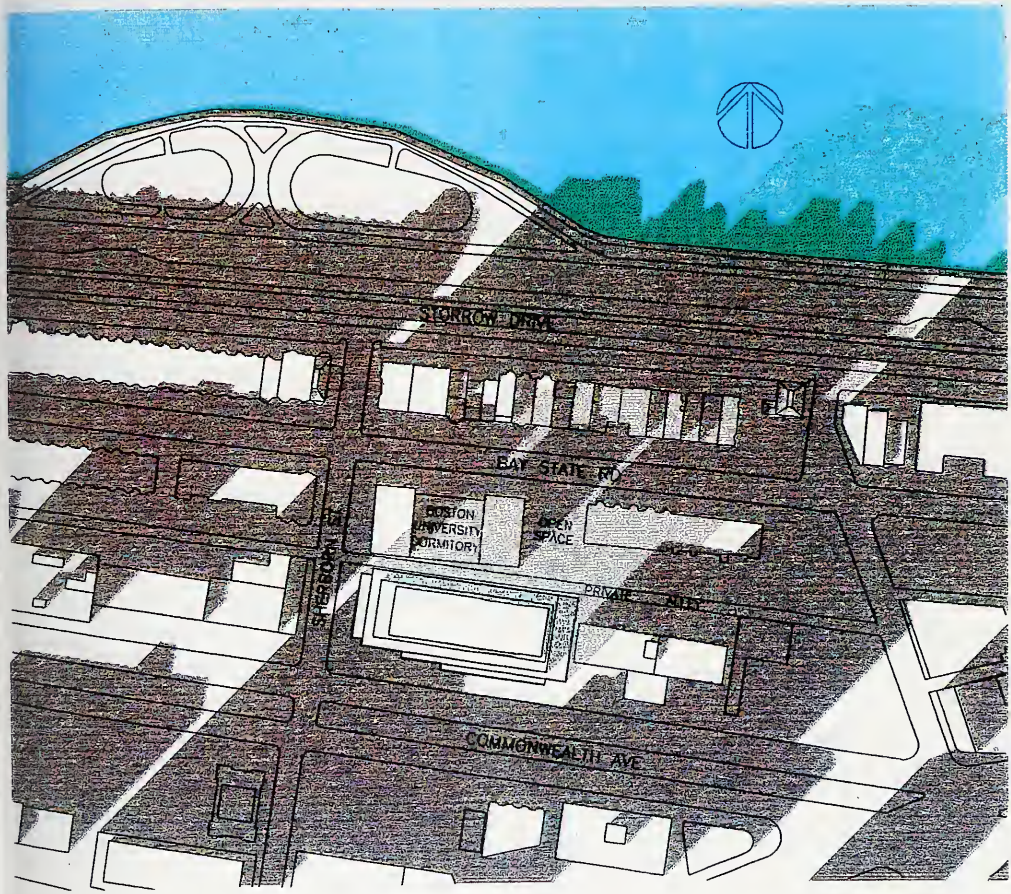
Figure 4-46



Shadow December 21, 3:00 PM (10 Story)

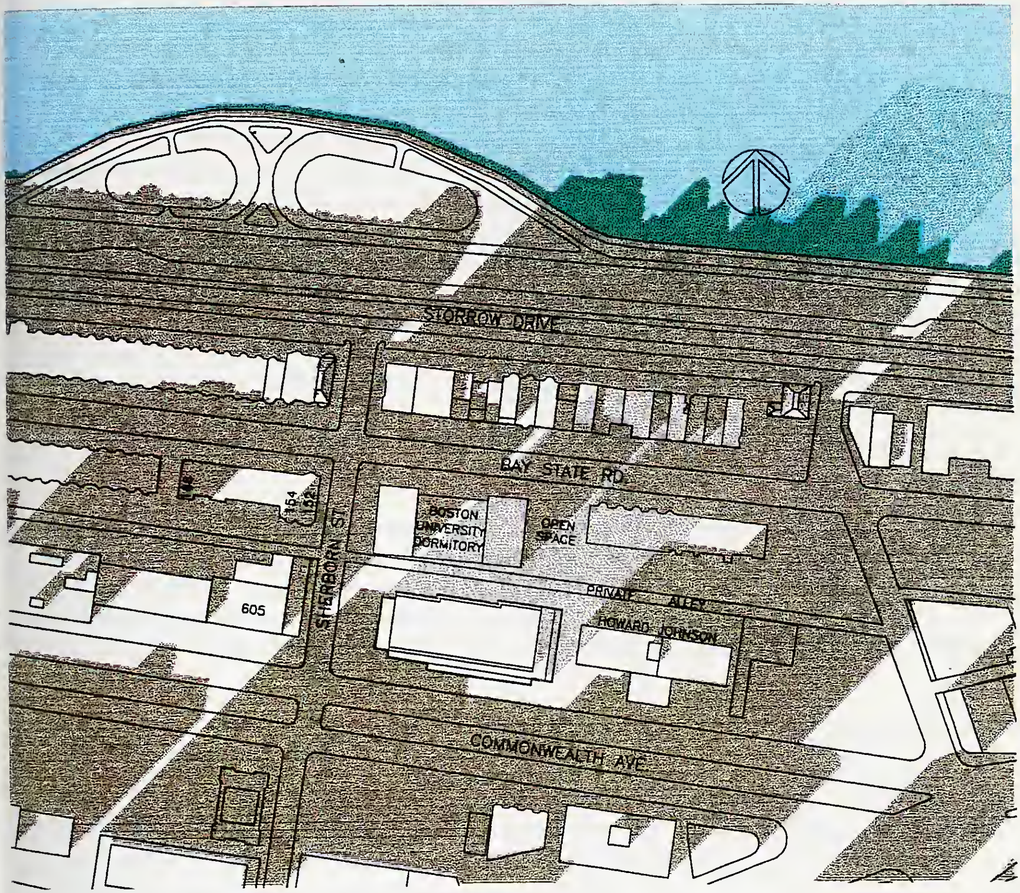
Prepared By:
Rowan Williams Davies & Irwin Inc.

Figure 4-47



Shadow December 21, 3:00 PM (9 Story)

Prepared By: Rowan Williams Davies & Irwin Inc.	***Figure 4-48***



Shadow December 21, 3:00 PM (B-4 Zoning)

Prepared By:
Rowan Williams Davies & Irwin Inc.

Figure 4-49

backs of buildings on the south side of Bay State Road. The shadow does not impact the front facades of buildings on either side of Bay State Road.

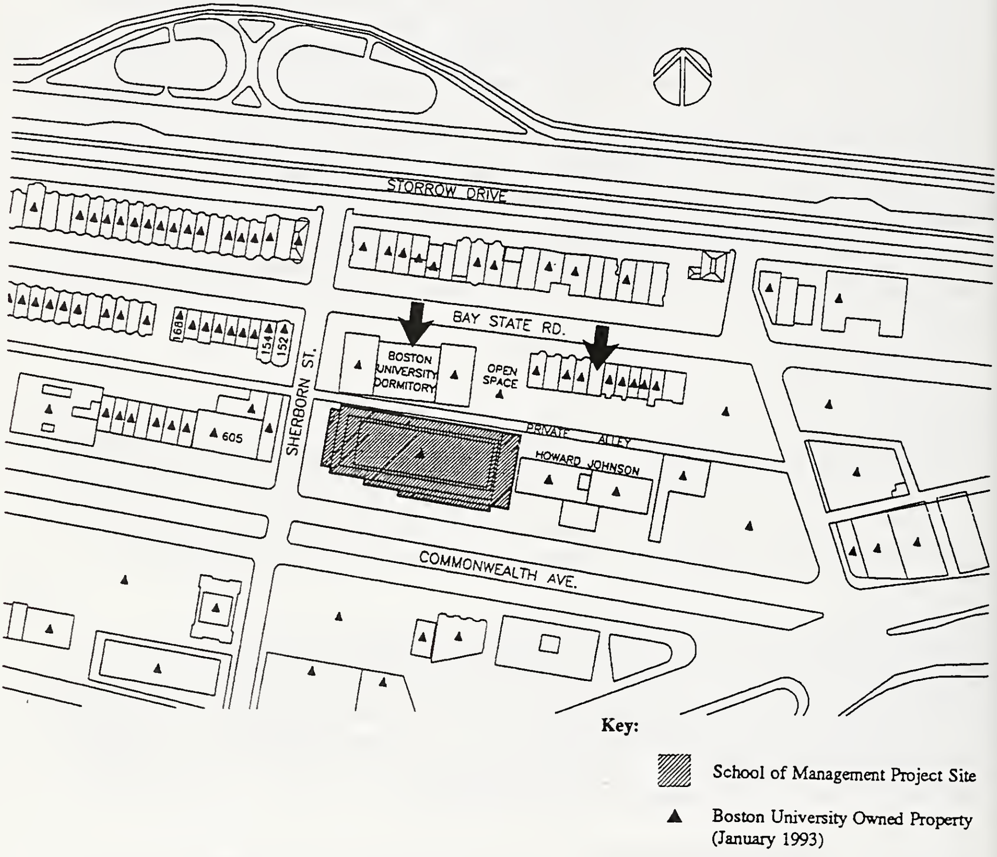
During the winter solstice, the greatest shadow lengths will occur. Shadows from all build alternatives for the new School of Management will reach areas summarized above and extend beyond to reach the southern portion of the river bank in the morning and the river in the afternoon. It should be noted, however, that the majority of the grade level areas between the Project site and the river are already in shadow cast by existing buildings. The most significant increase in shadow during the winter will occur at mid-day and afternoon on portions of the alley, along Bay State Road immediately north of the study site, and on the open space next to the Boston University dormitory. The nine story alternative reduces the impact of the Project from the ten story alternative. The B-4 zoning alternative produces essentially the same shadow impacts as the preferred nine story alternative. Morning winter use of the river bank and other public spaces is low in the winter months and use of the river itself is almost non-existent. The additional shadow on Bay State Road is consistent with existing shadows along the rest of the street.

4.6.4 DAYLIGHT

A daylight obstruction analysis was conducted for the preferred nine story alternative from within the historic district using the Boston Redevelopment Authority's Daylight Analysis (BRADA) computer software. This program analyzes a building's silhouette to ascertain how much daylight is perceived by a viewer at ground level locations. The results of the program contrast the percentage of daylight obstructed by a building to the percentage obstructed if the same site were vacant.

Since the DEIR was submitted, the BRA has suggested the daylight analyses be modified using different assumptions regarding property lines, setbacks, and building definitions. (See response to BRA letter in Chapter 8.0, Response to Comments.) It was also suggested that an additional analysis be included which depicts the Project seen from Bay State Road standing alone with no other buildings in front or around it. The daylight values change somewhat with the modified analyses but the conclusion remains the same as in the DEIR.

Two locations within the historic district were selected to illustrate potential daylight obstruction impacts from the Project. One location is on Bay State Road directly across from the Boston University dormitory looking south at the Project. For comparison purposes, an analysis was also conducted at a location on Bay State Road where historic rowhouses are located on both sides of the street to show typical existing daylight values in the District near the Project site. The Project standing alone, as it might be seen from Bay State Road, is also included. A view orientation plan is shown on Figure 4-50.


STORROW DRIVE
BAY STATE RD.
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168
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SHERBORN ST.
605
PRIVATE ALLEY
HOWARD JOHNSON
COMMONWEALTH AVE.
Key:
▨ School of Management Project Site
▲ Boston University Owned Property (January 1993)

Daylight View Orientation Plan

Prepared By:
Fort Point Associates

Figure 4-50

A daylight analysis was conducted at approximately 120 Bay State Road, a location within the District near the Project site, where both sides of the road are lined with typical historic rowhouses. The daylight values at this location on Bay State Road currently experience a daylight obstruction value of approximately 38.5% (see Figure 4-51). This condition is considered typical for the historic neighborhood. A comparison analysis was conducted looking at the Project as it might be seen from Bay State Road standing alone with no buildings around or in from of it. This condition would create a daylight value of approximately 26.7% (see Figure 4-51).

Two other analyses were conducted from the center of Bay State Road looking south at the Boston University dormitory towers comparing daylight values before and after the Project is built. The existing daylight value at this location near the dormitory is approximately 28.0% obstruction (see Figure 4-52). After the Project is built, the daylight value at this same location will be approximately 35.8% (see Figure 4-53).

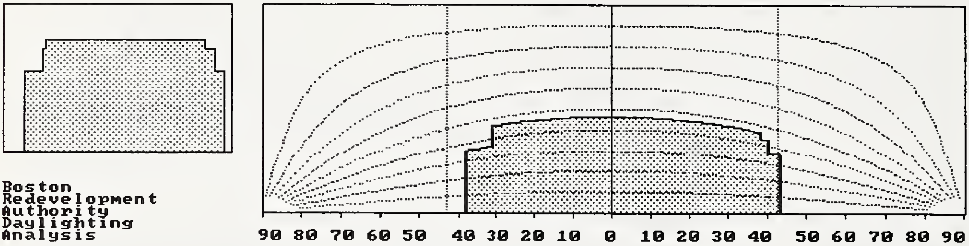
The results of the daylight analyses are summarized below:

View	Daylight Value (%)
Project Building Alone	26.7%
Existing Boston University Dormitory	28.0%
Project and Boston University Dormitory	35.8%
Existing Brownstones	38.5%

The analyses demonstrate that the Project impacts on daylight on Bay State Road are consistent with existing historic buildings in the District and will remain within a reasonable range of existing conditions in the historic district. Thus, in the area of the historic district, the Project will create a similar daylight experience to a person walking down the street as created by existing historic buildings on Bay State Road and therefore, no adverse effect on daylight in the District will be created.

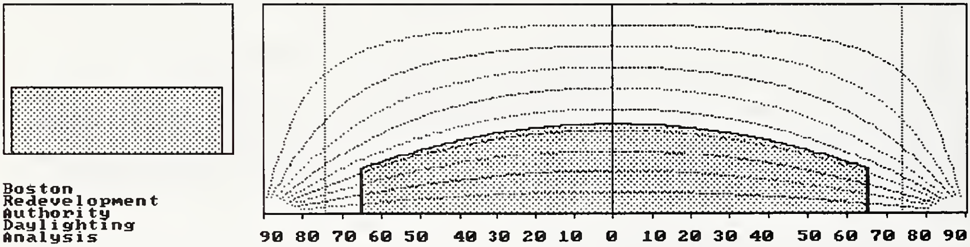
4.7 GEOTECHNICAL ELEMENTS

The proposed excavation and subsurface construction methods are not anticipated to adversely effect adjacent streets, utilities and existing structures. The excavation support system will be designed to protect existing improvements such as buildings, streets, and utilities. The Boston University dormitory and other buildings located on the north side of the private alley that abuts the site and the building located on the west side of Sherborn Street are located outside the zone of influence of the excavation. The excavation support system on the east side of the site will be designed to reduce soil displacements to the extent possible in order to reduce construction effects on the Howard Johnson's Motor Lodge adjacent to the site.



Obstruction of daylight by the building is 26.7 %

SOUTH VIEW OF PROJECT ALONE



Obstruction of daylight by the building is 38.5 %

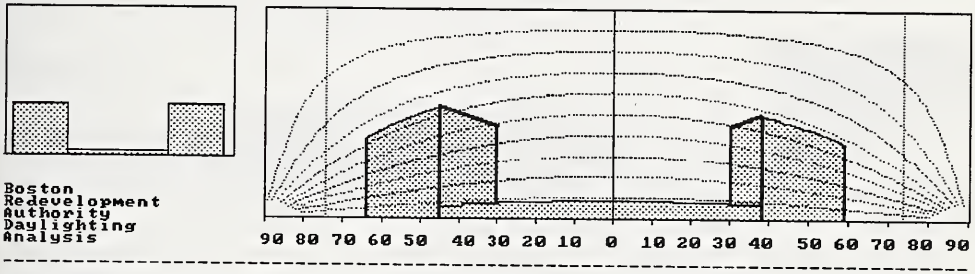
110 to 128 Bay State Road - Existing Condition

110-128 BAY STATE ROAD

South View Comparison

Prepared By:
Fort Point Associates

Figure 4-51

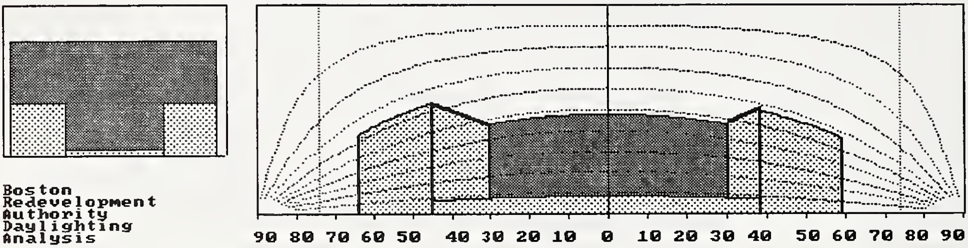


Obstruction of daylight by the building is 28.0%

South View - Bay State Road Across from Boston University Dormitory

Prepared By:
Fort Point Associates

Figure 4-52



```
Obstruction of daylight by the building is 35.8 %
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South View - Bay State Road Across from Project

Prepared By:
Fort Point Associates

Figure 4-53

4.7.1 EXISTING SUBSURFACE CONDITIONS

Soils

The subsurface soil conditions at the site of the new School of Management are typical for that area of Boston. The soils underlining the site consist of approximately 20 feet of fill and organic soil, overlying a thin (10 to 20 feet) layer of sand and a thick (130 feet) layer of clay. Glacial till and rock underlie the clay, with rock being about 170 feet below ground surface. The near surface soils are not suitable foundation bearing soils.

Groundwater

The groundwater conditions at the site were determined during the field exploration program conducted in December 1991 and January 1992. Two groundwater levels were identified at the site.

One groundwater level exists in the near surface fill soils at El. 8 feet to El. 10 feet (BCB). This water level is above the organic soils and appears to have a flow direction towards the north to northwest (towards the Charles River). The measured water levels in the fill soils are slightly above normal river levels (El. 7 feet winter; El. 8 feet summer). The Charles River is maintained at a near constant level by the MDC's operation of the Charles River Dam. Thus, the river influences the groundwater level in the area, provided leakage into sewers or localized dewatering is not causing a lowering of the groundwater level.

The second water level identified at the site is in the marine sand layer underlying the organic soil. Water levels in the sand were measured at approximately El. 6 feet. No groundwater flow direction was determined for this layer.

Two distinct water levels in the fill and sand layers are typical for the Back Bay and Fenway areas of Boston. This most important water level with respect to existing timber pile foundations is the water level in the fill soils. The adjacent buildings along Bay State Road, based on data obtained at the Building Department, are supported on timber piles cut-off at El. 5 feet.

Maintaining the area water level in the fill soils at or above the Charles River has been established as a project goal. A monitoring program has been established to measure water levels during and following construction to evaluate project impacts. If impacts are measured, Boston University is prepared to undertake corrective action in order to maintain area water levels.

The length of the building parallel to the river is approximately 320 feet. This length, relative to area groundwater flow, is relatively small as compared to the Back Bay area and Charles River basin. Recharge of groundwater from the river will therefore still occur uninterrupted towards Bay State Road and the historic district.

4.7.2 FOUNDATION

Construction

The depth of the below grade space was chosen to allow the building to bear on a concrete foundation mat on top of the thick clay deposit. The depth of excavation was chosen so that the weight of soil removed during excavation would be approximately equal to the weight of the building, thus the stresses in the underlying clay would remain the same. If below grade space was not incorporated into the building design, the building would require long end bearing piles for foundation support. The subsurface foundation design decision eliminated the need for end bearing piles that would have to be impact driven and provided below grade space that can be utilized for mechanical, operational, and parking.

The construction aspects and methodology for undertaking an excavation of approximately 40 feet were evaluated in great detail. Because of concerns for area groundwater issues and long term performance of the building, a fully waterproofed cast-in-place concrete permanent wall system was specified. Thus in the permanent condition, no pumping or dewatering of groundwater from within the building will be required. For construction, a temporary wall system will be required to control both groundwater seepage and to provide support of the earth at the sides of the excavation. Various wall systems were evaluated based on the required criteria. A soil mix wall system was chosen because of its greater stiffness and enhanced ability to control ground movements and its low permeability. The low permeability of the wall will reduce the seepage of groundwater into the excavation and thus maintain area groundwater levels. The wall will extend from ground surface to a depth of approximately 10 feet below the excavation which is also about 10 feet into the clay. The toe of the wall embedded into the clay will provide a seepage cutoff at the base of the excavation. This wall system is also installed by drilling techniques and will not require pile driving for installation. A geotechnical instrumentation program will be conducted during construction to monitor the performance of below grade construction activities. This program will include observation wells and piezometers installed outside the limits of the excavation to monitor groundwater levels.

Monitoring Program

To evaluate the performance of the temporary and permanent wall systems a monitoring program has been developed to measure the impact of construction. This program includes two general categories of measurements, groundwater measurements and measurement of building/ground movements.

The first group of measurements involves monitoring groundwater levels both in the near surface fill and underlying sand layer. Five wells will be installed along Bay State Road between Sherborn and Deerfield. Four additional wells will be installed opposite the other sides of the Project site. At five of these well locations, a second well will be installed and be sealed into the sand layer. These wells will allow the water level in the sand layer to be monitored (see Figure 4-54).

The wells are to be installed approximately one month prior to construction and two to three months prior to excavation. During excavation, water levels will be measured weekly to establish baseline data for use in evaluating construction impacts. Monitoring data for groundwater will be provided to the Massachusetts Historic Commission on a monthly basis.

The second category of measurements involves monitoring building/ground movements. This portion of the program will require the installation of reference points on adjacent buildings. These points will be surveyed periodically to measure if construction has caused building movement. Movements of the wall system will also be undertaken in order to evaluate the systems performance.

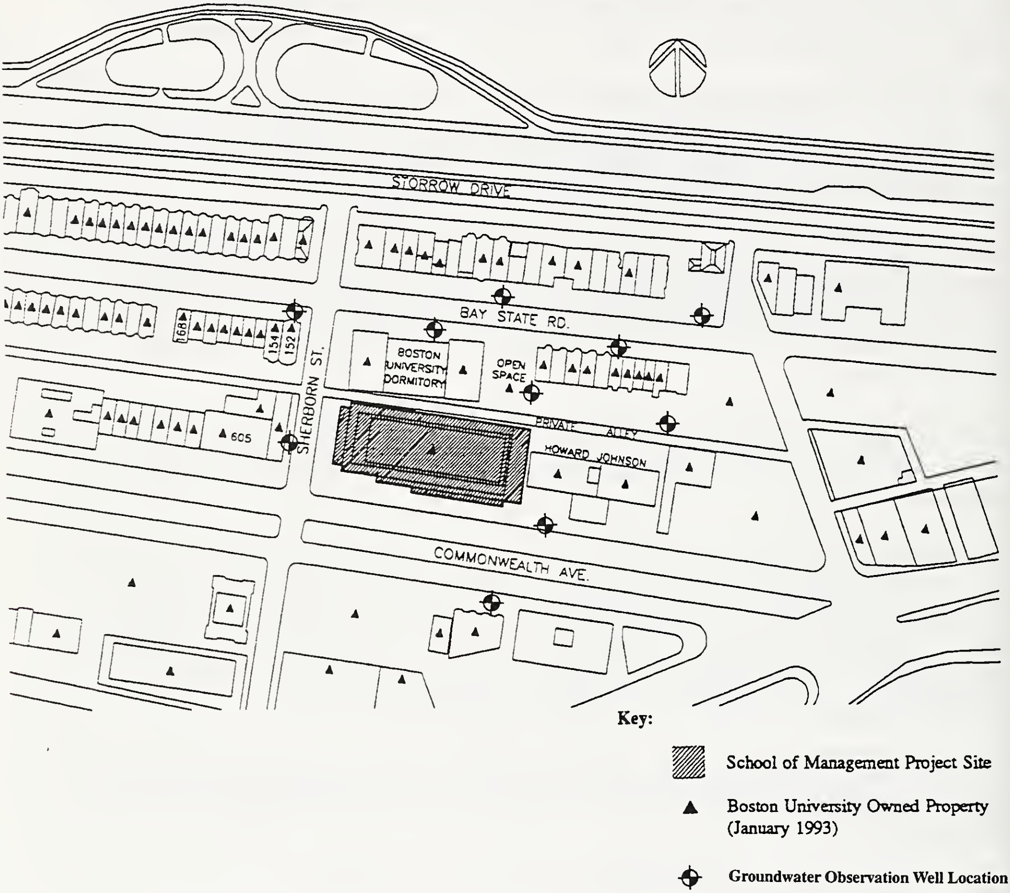
This type of monitoring program is commonly undertaken at sites where deep excavations are made. The extent and magnitude of the program is similar to that utilized at other recent excavations in Boston.

If monitoring indicates that the groundwater levels are lowered significantly (below EL 5 - top of wood piles) as a result of the construction, remedial measures will be implemented, such as sealing leaks in the wall systems and/or recharging the groundwater level outside the excavation limits. The type and extent of a recharge system, if necessary, will depend upon the magnitude of groundwater drawdown outside the site limits. The recharge system would be implemented to maintain groundwater levels above the cut-off elevations of the piles, El. 5.

A Building and Groundwater Level Protection Plan (BGLPP) addressing changes in the water table during and after construction will be submitted to the BRA. The BGLPP can be found in Appendix D.

4.8 MITIGATION MEASURES

The analyses conducted of potential impacts associated with visual, audible, and atmospheric elements in the Bay State Road/Back Bay West Historic District and Charles River Basin demonstrate that the new School of Management project does not create direct adverse impacts to historical resources near the Project site. It neither destroys or alters property nor creates a situation of isolation or neglect as defined in 950 CMR 71.05 (see section 4.3 above).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COMMONWEALTH AVE.
Key:
School of Management Project Site
Boston University Owned Property (January 1993)
Groundwater Observation Well Location

Groundwater Observation Well Location Plan

Prepared By: Haley & Aldrich, Inc.	**Figure 4-54**

Following the MHC finding of potential adverse effect, a consultation session was held on July 15, 1993 with the proponent and MHC staff. At that time, a reduced scale nine story alternative was discussed. This alternative represented a feasible alternative which reduced the square footage, height, and bulk of the Project building thereby mitigating potential visual impacts in the District. Furthermore, it represented a prudent and feasible build alternative which met the majority of the University needs for the site including a new School of Management, an upgrade of some executive administration space, and parking. The nine story building was also consistent with the Master Plan and Cooperation Agreement.

The DEIR provided an alternative site analysis, extensive analyses of potential visual, shadow, daylight, wind, and geotechnical impacts to the historic district. The analyses included comparisons between the original ten story project, preferred nine story alternative, and a B-4 zoning alternative. The MHC comment letter on the DEIR expressed satisfaction with the analysis of the of the preferred nine story project, the alternative site analysis, and approach to archaeological monitoring during construction. The letter also invited further consultation regarding the Memorandum of Agreement.

Another consultation meeting was held on March 10, 1994 to discuss how to proceed with a MOA between Boston University and the Massachusetts Historic Commission. In addition to representatives of Boston University and MHC, representatives were present from the Society for the Preservation of New England Antiquities, Boston Preservation Alliance, and the National Trust for Historic Preservation. At this meeting, details of the Building and Groundwater Level Protection Plan were presented, and the status of the Archaeological Monitoring Program and potential mitigation measures were discussed. It was agreed that the measures proposed for monitoring and protection of historic buildings in the District were satisfactory. The Archaeological Monitoring Program was briefly discussed and has since been submitted to MHC for approval. It was agreed that the Project building had already been reduced in size and would not be further reduced, but, that additional mitigation measures would be considered including renovations to historic buildings, interpretive plaques on historic buildings in the District, additional landscaping and screening in the historic district, and other measures would be implemented which strengthen the integrity of the historic district. It was agreed that the University would prepare a draft MOA which included appropriate mitigation measures, the Building and Groundwater Level Protection Plan, and the Archaeological Monitoring Program. Accordingly, a draft MOA was prepared and submitted to MHC. MHC has indicated that the MOA will be finalized during FEIR review and executed at the completion of the MEPA process. Meeting minutes and the draft MOA are included in Appendix B. The draft MOA includes:

- A commitment to renovate one historic building per year over a three year period (the value of renovations is estimated to be $225,000 or more per building).
- Implementation of a detailed Building and Groundwater Level Protection Plan during construction including pre-construction evaluation, routine groundwater level and building monitoring, regular reporting to MHC, and remedial actions if necessary.

- Added landscaping along Bay State Road and Sherborn Street in the historic district which provides screening of the Project.
- Improvements to the private alley including upgrading the storm drainage system in the alley from Sherborn Street to Deerfield Street that serves abutting historic buildings which will reduce or eliminate flooding of those structures.
- Installation of six interpretive plaques on selected historic buildings in the District which provide a brief history of the building.
- Implementation of an Archaeological Monitoring Program approved by MHC prior to construction.

Visual

Because the Project site is so close to Bay State Road and the Charles River, all of the Build alternatives will be seen from the historic district and, to a lesser degree, the Charles River Basin. The Project design minimizes adverse visual impacts on the historic resources in the area by utilizing compatible building materials of brick, granite, and limestone-colored pre-cast concrete. The building design employs these materials in a similar style to the Boston University Bookstore Mall and the Myles Standish Hotel building.

Furthermore, the nine story alternative mitigates potential visual impacts on Bay State Road and Charles River Basin by the reduction in height and bulk. The nine story alternative added balconies on the upper floors facing the historic district and Charles River designed to be compatible with the curved nature of the historic buildings in the District. Additional landscaping as required in the MOA will further screen the Project for the historic district.

Audible

The potential for noise impacts is associated with construction and building operations. No unusual noise impacts from construction or operations will be created as a result of any Build Project alternative. Construction activities will be conducted in accordance with all applicable regulations. No trucks will be allowed on Bay State Road, and no impact pile driving or blasting are anticipated as part of construction activities. Potential impacts from construction will be short-lived and additional mitigation measures are not planned.

There will be no significant increase in noise levels introduced into the historic district as a result of the Project for any Build alternative. Garage exhaust louvers in the alley and roof-mounted mechanical systems will be properly attenuated to meet all applicable regulations and ensure that noise from these sources do not adversely impact sensitive receptors in the District. The construction of the building will buffer the District from street noise emanating from Commonwealth Avenue.

Atmospheric

Air Quality

The Project will not introduce any elements which will significantly impact the air quality in historic district. Traffic associated with the Project will not significantly increase. Mechanical systems will meet all applicable regulatory standards. Construction activities will be short-lived and will not adversely impact the air quality in the District. Mitigation measures to protect the District during construction include a ban of all truck traffic from Bay State Road and dust control measures during excavation.

Wind

The quantitative wind analyses demonstrate that wind conditions will either remain the same or improve in the historic district as a result of the Project. Therefore, no further mitigation measures are planned for the District.

Shadow

Some net new shadows will be created in the District and the Charles River Basin. These will be largely be evident in the winter months. The remainder of the year, new shadow impacts occur only for short periods of time on the alley behind the Project, roofs and rears of buildings on Bay State Road, and the Sherborn Street/alley intersection. The nine story alternative minimizes the limited net shadows created as a result of the Project.

Daylight

The daylight analyses conducted for the District indicate that Project impacts are consistent with other existing buildings in the area and will not create an adverse effect on the District. Therefore, no additional mitigation measures are anticipated.

Geotechnical Elements

The proposed excavation and construction methods are not anticipated to adversely impact structures in the historic district. Excavation techniques which protect adjacent structures and groundwater levels will be employed during construction. In accordance with the MOA, a monitoring and contingency program will be in place prior to construction and is included in the Building and Groundwater Level Protection Plan (see Appendix D).

Conclusion

The original ten story project design raised concerns about the introduction of elements out of character with the historic district and new shadows in the Charles River Basin. In order to minimize and mitigate these potential impacts, a feasible alternative was developed. This nine story alternative, which reduces the Project's square footage height and bulk by elimination of a floor and reduced floor to ceiling heights, still meets most of the University's program needs. The nine story alternative also adds design features facing the historic areas which are more compatible with the historic character of the area as seen from the District and Charles River. The shadow and other visual impacts are also reduced as a result of this alternative.

The B-4 zoning alternative would not reduce visual or shadow impacts in the historic district or River significantly more than the preferred nine story alternative. Furthermore, the B-4 zoning alternative is not considered a feasible alternative because it does not meet University needs for a new School of Management, replacement of some executive administration space, or parking for the Project. The preferred nine story design constitutes a feasible alternative which minimizes and mitigates potential adverse effects of concern.

A MOA has been developed which offsets impacts of the Project on the historic district and provides direct significant improvement to the district itself.

5.0 ARCHAEOLOGICAL RESOURCES

5.0 ARCHAEOLOGICAL RESOURCES

5.1 INTRODUCTION

This chapter contains an assessment of archaeological resources at the new School of Management site and an approach to monitoring during construction. To accommodate all potential impacts, it is assumed that all Build alternatives would involve substantial subsurface excavation and would be treated similarly. The No-Build alternative would leave the site in its present condition which would require no further analysis. A permit application including an Archaeological Monitoring Program during construction has been submitted to the Massachusetts Historic Commission for review.

5.2 ARCHAEOLOGICAL RECONNAISSANCE

An archaeological reconnaissance was conducted in accordance with 950 CMR 70 and in consultation with the City Archaeologist and Massachusetts Historical Commission. The full report is on file with the Massachusetts Historical Commission ("Archaeological Reconnaissance Survey of Boston University's new School of Management Building in Boston, MA." Office of Public Archaeology, Report of Investigations No. 123).

The Project site has no recorded prehistoric archaeological resources. However, based on concerns expressed by the Massachusetts Historical Commission and Boston Landmarks Commission, an archaeological survey was conducted to determine the potential for undocumented archaeological resources, particularly the potential for the remains of a prehistoric fishweir.

The results of the archaeological reconnaissance indicated that the Project area is situated on a parcel that consisted of mud flats and salt marshes near the south banks of the Charles River during the historical period. Therefore, it is likely that the site was either subtidal, intertidal or salt marsh during the prehistoric period. Because these type of environs could have supported fishing and shell fishing during the prehistoric period, the Project area has the potential for undocumented prehistoric remains, particularly the remains of a fishweir or similar fish-trapping feature within the undisturbed marine deposits under the historical fill.

In order to assess the potential for fishweir remains, the reconnaissance report compared the geological features of this site with those of the Boylston Fishweir Site, approximately one mile to the east. Results of this comparison show significant characteristics of the site which reduce the potential for fishweir remains. Furthermore, there is a lack of evidence that a defined river or waterway for the passage of fish existed, and there is also a significant difference in absolute elevations between marine deposits at the Boylston Fishweir site and the School of Management site (corresponding marine deposits are approximately 15 feet higher at the School of Management site). Nevertheless, because of the dearth of knowledge regarding the precise environmental conditions at the site and the limited knowledge of locations and forms of fishweirs, the site must be considered as a possible location for a prehistoric fishweir or other similar feature.

5.3 ARCHAEOLOGICAL MONITORING DURING CONSTRUCTION

A permit application has been submitted to the Massachusetts Historical Commission for archaeological monitoring during construction. The proposed research design for monitoring during construction excavation is presented below. The construction excavation methodology has been developed since the submittal of the Draft Environmental Impact Report and the monitoring program has been modified accordingly.

5.3.1 ARCHAEOLOGICAL MONITORING OF THE EXCAVATION FOR THE UNDERGROUND PARKING GARAGE

It is recommended that archaeological investigations be limited to the eastern 2/3 portion of the site because of the presence of contaminated soils associated with the former gas station which previously occupied the western 1/3 of the Project site.

The Project excavation activities will occur in three stages: pre-excavation into the fill along the length of the perimeter wall to identify any obstructions; installation of an earth retention system (perimeter wall); and the removal of soil for construction of the sub-surface parking garage.

The pre-excavation activities to search for obstructions within the urban fill level (i.e., less than ca. 10 feet below the surface) is not expected to cause disruption to undisturbed marine deposits that are situated below the level of urban fill. The construction of the perimeter support wall will reach the base of the marine deposits, but the drilling procedures will result in only a limited displacement of soil, since much of the soil deposits will be incorporated into the concrete mixture; thus, the impact to archaeological sensitive deposits is considered to be minimal and the potential for identifying such deposits is expected to be low because of the low amount of soil displacement. Furthermore, the placement of the perimeter support wall must be accomplished before excavation down to significant depths -- i.e., the level of undisturbed marine deposits -- across the parcel can be accomplished. The subsequent excavation of the parcel will also disrupt undisturbed marine deposits situated below the level of historical fill and, because of the extent of earth removal involved, the potential for impact to any archaeological remains situated within the marine deposits is considered to be high.

No archaeological monitoring is recommended for either the pre-excavation activities (the search for obstructions around the perimeter of the parcel) or the construction of the perimeter support wall. A professional archaeologist will monitor, however, all subsequent excavation activities within the parcel to identify, if present, any intact archaeological remains that may be situated within the undisturbed marine deposits down to a depth of ca. 40 feet below the surface, or the top of marine clay stratum.

Archaeological Monitoring Research Design

An archaeologist will be on-site during all excavations within the parcel that take place after the perimeter support wall has been constructed to identify any evidence of prehistoric activity that may be present in these marine deposits. Specifically, such evidence most likely would consist of wooden stakes or the remains of such that may have formed part of a fishweir or a similar fish-trapping device. The archaeologist will monitor the excavation activities in order to make regular inspections of the stratigraphic profile that results from the excavation, to inspect the backfill from the trench for any evidence of cultural remains, and to record and collect any archaeological remains that are identified.

The excavation of the interior portions of the site for the parking garage will be conducted in three to four stages, each of which will consist of the excavation of a deposit of soil approximately 10 feet thick across the site. The excavation of the parcel in stages is required for the construction of two or three levels of tiebacks to support the construction perimeter wall. This sequence of excavation will also facilitate the controlled monitoring of excavation activities across the site by a professional archaeologist to identify any evidence of prehistoric activity that may be present in these marine deposits, such as fishweir remains described above.

The general sequence of excavation and archaeological monitoring is proposed as follows. A 10-foot thick deposit of soil will be excavated across the site, generally from the east end (adjacent to the Howard Johnson's Motor Lodge) to the west end (adjacent to Sherborn Street), leaving an earthen ramp in one portion of the site for truck and other machinery access. The archaeologist will monitor this excavation work to determine whether any archaeological remains are present. Once this initial deposit is excavated, the machinery will be moved back to the eastern end of the parcel to initiate the excavation of the next 10-foot thick level. Each subsequent 10-foot thick level of soil will be excavated in a similar manner. The excavation of each level is estimated to take approximately three weeks.

A professional archaeologist will make regular inspections of the stratigraphic profile that results from the excavation, to inspect the soil deposits for any evidence of cultural remains, and to record and collect any archaeological remains that are identified. Because the excavation contractor will have some flexibility concerning the timing and horizontal sequence of excavation, the monitoring archaeologist may, at his/her discretion and in consultation with the contractor, request the excavation of specific areas of the site within a given 10-foot level to further explore possible archaeological remains that may be identified or to obtain a requisite stratigraphic profile of the deposits.

In the event cultural remains are identified, MHC will be notified of the discovery immediately. Meanwhile, construction excavations will proceed in order to determine the vertical and horizontal extent of the remains. If cultural remains are identified in one area of the site, the excavation of the remainder of the 10-foot level will continue across the parcel to determine the horizontal extent of the archaeological remains. If the archaeological remains are found to be limited in their horizontal extent, the archaeological site area will be delimited by the archaeologist (using visible means such as surveyor's flagging) as off-limits to further excavation until an appropriate level of archaeological investigation for the remains can be developed. Excavation across the remainder of the parcel would continue, monitored by the archaeologist.

For any archaeological remains that may be uncovered, an attempt will be made to identify as precisely as possible the location of the remains (i.e., depth below surface and surrounding soil matrix) prior to their removal; the stratigraphic profile will be documented through black-and-white print and color slide photography, and if warranted, a scaled drawing. Analytical samples, such as charcoal for radiocarbon dating or samples of the associated soil matrix, may also be collected. Any cultural materials that are recovered will be collected and placed in a suitable container or protective packaging for removal to the archaeological laboratory at Boston University for processing and analysis.

5.3.2 LABORATORY ANALYSIS

Laboratory analysis will be performed on all cultural materials that are recovered during both the archaeological monitoring and testing phases of the Project. Any artifacts that are recovered will be cleaned, identified, and catalogued. If any analytical samples (i.e., radiocarbon, soils) are obtained, these samples will be sent to appropriate laboratories for processing. An attempt will be made to correlate the recovered archaeological materials with the results of the analytical samples (i.e., radiocarbon dates) and with excavated samples from sites in similar contexts (i.e., the Boylston Street Fishweir site), if the results of those excavations are available. All cultural materials recovered will be curated in the archaeological laboratory at Boston University.

5.3.3 REPORT PREPARATION

The results of the archaeological monitoring and test excavations will be summarized in a final report describing the Project, background study, fieldwork, and analysis. The summary report will present a discussion of the results of the archaeological investigations, including a description of the cultural resources recovered. The report will be illustrated with plans of archaeological testing, representative soil profiles, and photographs of cultural remains, if warranted. A complete inventory of all recovered archaeological materials will be presented in an appendix. The final detailed archaeological testing and reporting program will be developed in consultation with the Massachusetts Historical Commission prior to commencement of construction.

5.3.4 SCHEDULE

Excavations for the underground parking garage are expected to last approximately four months, during which time an archaeologist will be on site at all times during construction activities having a potential to impact undisturbed marine deposits. If cultural materials are identified, laboratory analysis will require another two weeks; if radiocarbon samples are obtained, a minimum of 30 days is required for the analysis. A draft final report will be submitted within eight weeks of completion of the archaeological monitoring for the Project.

5.4 MITIGATION MEASURES

At this time, there is no evidence which indicates the need for mitigation measures to protect archaeological resources on the Project site. An approach to testing and reporting procedures during construction has been offered in this chapter. The permit application has been filed with MHC and procedures will be finalized with the MHC permit.

6.0 OIL AND HAZARDOUS MATERIALS

6.0 OIL AND HAZARDOUS MATERIALS

6.1 INTRODUCTION

Environmental assessments of the new School of Management project site were conducted to assess the potential for the presence of oil and/or hazardous materials at the site. These assessments were based on the review of readily available information on the site history, usage, regulatory status, subsurface soils, observations of ground surface conditions, subsurface field explorations, and chemical testing of soil and groundwater samples. The testing of soil and groundwater samples was performed to assess construction considerations, especially soil and water handling and disposal requirements. The nine and ten story project alternatives have virtually identical impacts in terms of solid and hazardous wastes. The B-4 zoning alternative would not involve as much subsurface excavation as the other Build alternatives but materials would be handled in the same manner. It may be noted that with the No-Build alternative, there would not be site excavation activities, and therefore, no remediation of contaminated soils and groundwater on the project site.

6.2 EXISTING CONDITIONS

The site is located immediately north of Commonwealth Avenue and west of Kenmore Square. It is currently paved and relatively flat. Ground surface elevations vary from approximately El. 18 feet to El. 21 feet (Boston City Base Datum). Two small parking attendant shacks are the only structures currently on the site. The entire site is currently used as a parking area.

6.3 HISTORY OF OIL AND HAZARDOUS MATERIALS

Environmental assessments were conducted by Haley & Aldrich (H&A) in June and December 1992 for Boston University. The purpose of the evaluations was to assess the potential for oil or hazardous materials being present at the site. This evaluation included site history research, regulatory and municipal file reviews, a soil boring and test pit program (see Figure 6-1), and chemical testing of soil and groundwater samples.

Historically, the Project site was a marshy transitional area between upland and flowed tidelands and was one of the last portions of the Back Bay to be filled (see Figure 6-2). The site location was known to be filled in approximately 1890. The site remained undeveloped following the filling until the early 1930's. The portion of the Project site, formerly occupied by a service station (599-601 Commonwealth Avenue), is currently listed by the Massachusetts Department of Environmental Protection (DEP) as a "Location to be Investigated" (LTBI).

The site is listed as an LTBI due to the presence of gasoline and oil contamination in near surface soils and groundwater in the vicinity of the former service station. The petroleum contamination was initially identified during tank removal activities and previous assessments involving subsurface explorations conducted between 1983 and 1987 by others.

Remedial response actions were undertaken at the site in the area of the former service station, during the period April 1984 to April 1987. In the spring of 1987, all the known underground fuel tanks and approximately 3,676 cubic yards of soil contaminated with petroleum products were removed from this area. Clean fill was placed in the void. In addition, a groundwater depression and scavenger pump system was installed in an attempt to recover phase-separated "free" petroleum product.

Testing

The environmental evaluations conducted by H&A included chemical testing of soil and groundwater samples collected from the borings and/or test pits. The purpose of these tests was to determine the degree and extent of soil contamination within the construction area and to characterize the on-site soils in terms of handling and disposal criteria.

Groundwater sampling and analysis was also undertaken to assess the need for treatment during excavation dewatering. Observation wells were installed on site in the winter of 1992. The groundwater level in the observation wells installed in the borings ranged from 6 feet to 12.5 feet below ground surface during the period from December 27, 1991, to February 11, 1992. Water level variations may be encountered during construction since groundwater levels are influenced by precipitation, local construction activities, and leakage in and out of sewers and storm drains. Analysis of samples from the wells also indicated low levels of petroleum/oil still present in the soil and groundwater in localized areas. The results of these environmental assessments are summarized in Appendix D.

In summary, chemical tests of soil and groundwater conducted in the H&A environmental evaluations indicated that within the western portion of the site, elevated concentrations of total petroleum hydrocarbons are present in the soil and groundwater. This area corresponds to the location of the former service station and underground storage tanks, where remediation excavation and removal were not previously conducted (generally beneath the footprint area of the former station, an area north of the former station, and at the groundwater surface). The soils from the easterly portion of the site showed low levels of total petroleum hydrocarbons and some metals which are typical of urban fill material.

The types and concentrations of compounds detected at the site are consistent with previous site usage and do not constitute an imminent hazard to human health, safety or welfare, or to the environment. No additional sources of contamination were identified at the site. Some areas of the site will require additional evaluation and soil or ground water remediation during construction. It is anticipated that the site remediation would occur during construction of the Project as described below.

6.4 CONSTRUCTION DISPOSAL PLAN

Excavated Material

During construction, special handling and proper disposal of contaminated soil materials will be performed. An Excavated Soil and Material Management Plan (ESMMP) is being developed as part of the construction documents for work at the site. The ESMMP will outline procedures for on-site classification, handling and testing, and guidelines for the disposal of excavated material during construction. The ESMMP is included in Appendix D. Excavated soil is not planned to be stockpiled on-site, but will be removed and disposed of immediately based on established classification and handling criteria. Excavated soil will be reused as backfill material to the extent possible to minimize the need for off-site disposal of excess material. All excavation activities will be conducted in accordance with the revised provisions of the Massachusetts Contingency Plan (Ch. 21E). At the conclusion of construction, a site evaluation will be conducted by a Licensed Site Professional and a Response Action Outcome will be formulated.

During construction, a conventional temporary excavation support system will be installed along the perimeter of the excavation. It will consist of a continuous wall that extends the complete depth and length of the excavation. As excavation proceeds, bracing will be installed in order to provide lateral support. This system will support the adjacent streets, structures, and other existing improvements.

The proposed construction calls for excavation to a depth of 40 feet. It is estimated that a total of approximately 16,000 cubic yards of contaminated material will be excavated, all of which will be promptly removed from the site and disposed of in accordance with state regulations. Asphalt from the existing parking lot will be crushed and recycled as part of the site preparation for construction.

Dewatering

Dewatering activities associated with construction will be conducted in accordance with applicable requirements of the Boston Water and Sewer Commission (BWSC), and NPDES Exclusion and/or MWRA requirements. Special requirements of these permits will be included in the Contract Documents. Discussions with permitting authorities will occur in conjunction with the appropriate permit applications.

During construction of the Project, there will be a negligible effect on water quality in the area. The stormwater and groundwater that collects within the excavation support walls, roughly 7/8ths the area of the existing parking lot, will be collected and, if necessary, treated in accordance with the requirements of the discharge permit prior to discharge into the stormwater system in Commonwealth Avenue. After the foundation is in place and backfilling is completed, stormwater will continue to discharge into the drainage system designed for the finished building. The dewatering process will involve testing, separating, and treatment, when necessary, prior to discharge from the site. The building will be outfitted with oil/water separators in the drains of the parking garage to protect water quality after the building is completed.

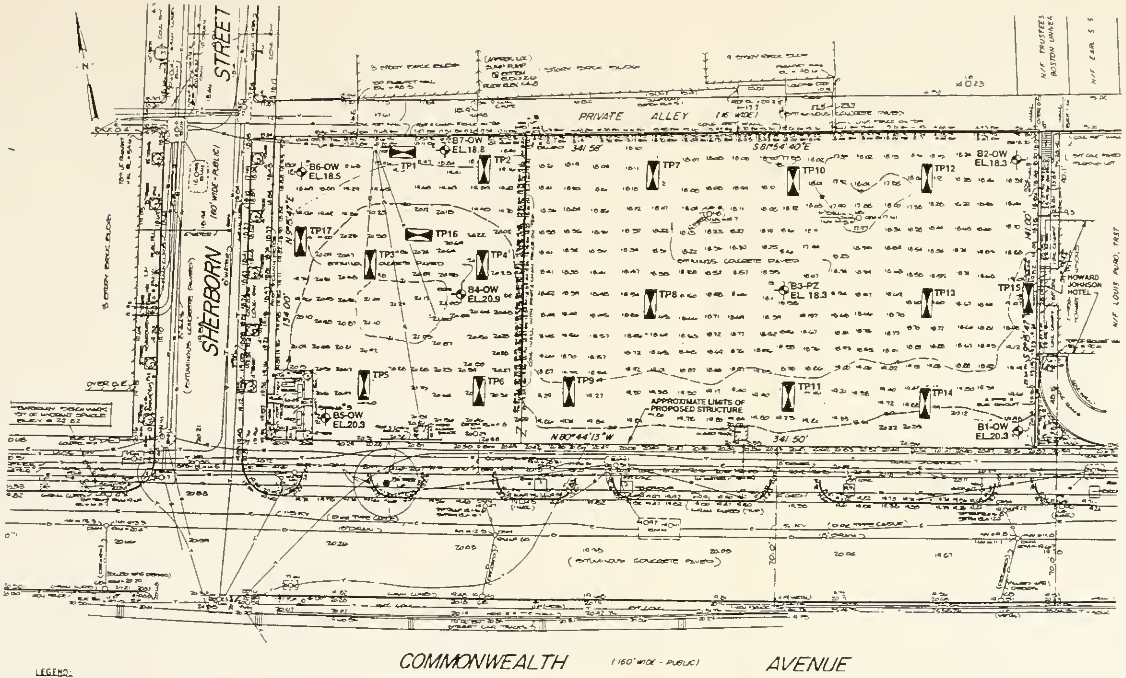
Preliminary calculations indicate dewatering of from 5 to 50 GPM during construction. During the temporary construction dewatering process, water will be tested and treated, if required, before being discharged into the storm drain in Commonwealth Avenue. Groundwater quality monitoring and discharge will be conducted in accordance with the discharge permit and will be included in the Construction Documents.

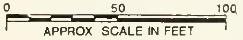
6.5 MITIGATION MEASURES

Excavated soil from construction activities will be tested and classified on-site prior to removal. Handling and removal will be according to established criteria as defined in an approved Excavated Soil and Material Management Plan. Following construction, the potential sources of contamination will have been removed. All of the work relative to contamination will be conducted in accordance with the revised provisions of the Massachusetts Contingency Plan (MCP) (Ch. 21E). In addition, a Licensed Site Professional will render an opinion as to the remedial measures and if a permanent solution has been achieved, a Response Action Outcome will be formulated. Boston University is prepared to undertake additional response actions as necessary to comply with the MCP and that will result in an appropriated permanent solution.

Asphalt from the existing parking lot will be crushed and recycled to further reduce the need for off-site disposal of excess material.

There will be a negligible impact on water quality in the area. During construction, the dewatering process will involve testing, and treatment, when necessary, prior to discharge from the site. Oil/water separators will be employed in the drains from the parking garage to protect water during operation of the building.





LEGEND:

B1 EL.20.3 — APPROXIMATE LOCATION, GROUND SURFACE ELEVATION AND DESIGNATION OF TEST BORINGS DRILLED BY GUILD DRILLING CO., INC. UNDER THE TECHNICAL OBSERVATION OF HALEY & ALDRICH, INC.

TP-1 — APPROXIMATE LOCATION AND DESIGNATION OF TEST PITS COMPLETED BY J. MARCHESE & SONS, INC., UNDER THE TECHNICAL OBSERVATION OF HALEY & ALDRICH, INC., ON 7-8, 11 NOVEMBER 1992.

OW — INDICATES GROUNDWATER OBSERVATION WELL WAS INSTALLED IN THE COMPLETED BOREHOLE

PZ — INDICATES PIEZOMETER WAS INSTALLED IN THE COMPLETED BOREHOLE

NOTES:

1. THIS FIGURE WAS BASED ON A TOPOGRAPHIC SITE PLAN PREPARED BY HARRY R. FELDMAN, INC. DATED 11 FEBRUARY 1992.
2. ELEVATIONS ARE REFERENCED TO BOSTON CITY BASE DATUM (BCB) WHERE EL. 0.0 IS 5.65 FT. BELOW THE 1929 NATIONAL GEODETIC VERTICAL DATUM.
3. LOCATIONS OF BOREHOLES WERE DETERMINED IN THE FIELD BY HALEY & ALDRICH, INC. BY TAPING RELATIVE TO EXISTING SITE FEATURES.
4. ELEVATIONS OF BOREHOLES WERE DETERMINED BY HARRY R FELDMAN, INC.
5. LIMITS OF TEST PITS ARE NOT TO SCALE.

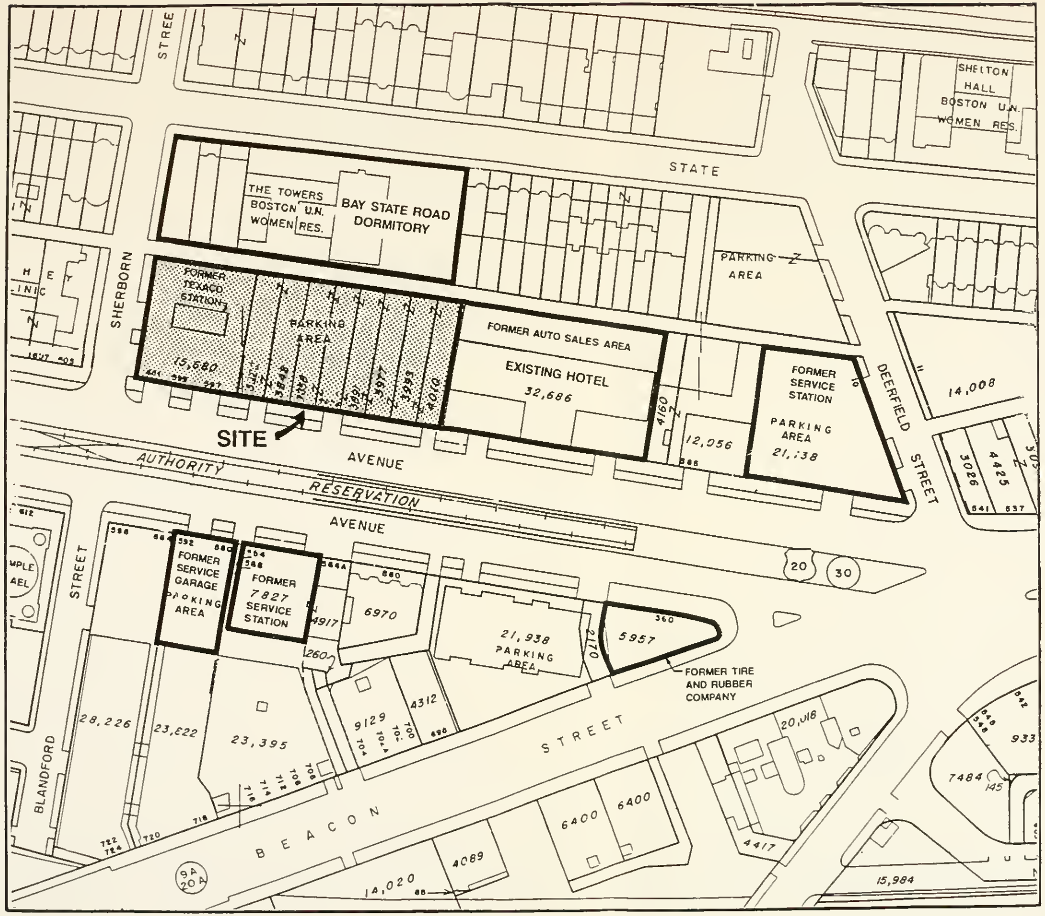
**BOSTON UNIVERSITY
SCHOOL OF MANAGEMENT**

***Subsurface Exploration
Location Plan***

Figure 6-1

Prepared By:
Haley & Aldrich

July 1993



NOTE

1 BOSTON REDEVELOPMENT AUTHORITY, CITY OF BOSTON, TOPOGRAPHIC AND PLANIMETRIC SURVEY SHEETS NOS 23N-9E AND 24N-9E, 1961, 1962 WERE USED AS BASE PLAN IN THE PREPARATION OF THIS FIGURE

0 100 200
APPROX SCALE IN FEET

BOSTON UNIVERSITY SCHOOL OF MANAGEMENT

Area Features and Historical Locations

Figure 6-2

Prepared By:
Haley & Aldrich
July 1993

7.0 PUBLIC UTILITIES

7.0 PUBLIC UTILITIES

7.1 INTRODUCTION

This chapter discusses the existing water, sewer, and stormwater infrastructure systems in the area and the projected demands of the new School of Management project. The Project's utility network will be designed to avoid adverse impacts on the existing utilities during construction, and to conserve resources after the Project is completed. The analyses presented below demonstrate that the existing water and sewer systems are adequate to accommodate the ten story project alternative. Since the reduced nine story alternative is the preferred alternative, the reduction in demand from the ten to the nine story building is included in the discussion. The other alternatives, no-build and B-4 zoning alternative, would create either no impact or less impact on water and sewer services and therefore, are not discussed.

All water, sewer, and stormwater connections will be constructed in conformance with Boston Water and Sewer Commission (BWSC) and Massachusetts Water Resources Authority (MWRA) requirements. The proponent will employ the best practical conservation methods in the HVAC systems, plumbing fixtures, and other systems which use water and power. During construction, all open trenches exposing existing water, sanitary, and storm mains will be protected with steel plating for temporary covering. All steel plating will be able to withstand vehicle wheel loads. The Construction Management Plan required by the City of Boston will include additional detail on utilities protection.

While the nine story project reduces utility impacts, for the most part, this reduction in demand does not justify a change in utility service size. All calculations and sources for utility demands are found in Appendix E, Public Utilities. In addition, documentation of contacts with affected utility companies can be also be found in Appendix E.

7.2 WATER SYSTEM

Existing Condition

The Boston Proper District receives its domestic and fire protection water supply from BWSC lines which are supplied by MWRA distribution mains. The 16-inch low service water main runs east-west along Commonwealth Avenue from Kenmore Square to Cambridge Street and is the principal main servicing the area of the Project site. This main is predominantly made of pit cast iron (PCI) and was constructed between 1875 and 1896. Its 16-inch diameter is consistent for most of its length with the exception of a 20-inch diameter segment crossing the southerly terminus of the

Boston University Bridge. Several branch mains of smaller diameters are serviced by the 16-inch main at various locations along Commonwealth Avenue (see Figure 7-1).

On September 30, 1992, BWSC conducted a hydrant flow test to determine the static pressure, residual pressure, and estimated flows in the existing main that will service the Project site. The hydrant is located at Commonwealth Avenue near Sherborn Street (No. 88-M22H) over the 16-inch PCI line (Circa 1893) in Commonwealth Avenue. The results are as follows:

Static	62.0 PSI
Residual flow	51.0 PSI
Estimated quantity	3,399 GPM
Available at 20 PSI	7,007 GPM

It is evident from the hydrant flow test that the existing 16-inch low service water main has adequate pressure and flow to meet fire protection requirements. In order to prevent any potential adverse impact, pumping devices will be provided to ensure adequate flows at the required pressure for fire suppression. The hydrant flow report is included in Appendix E, Water and Sewer.

Project Impact

The total anticipated water demand for the Project is listed in three categories: Domestic Water; Air Conditioning Make-up, and Fire Protection. The maximum demand for each category are as follows:

	Ten Story	Nine Story
Domestic Water	184 GPM	168 GPM
AC System	74 GPM	69 GPM
Fire Protection	1,250 GPM	1,250 GPM

In reducing the building size from ten stories to nine stories, the domestic demand was reduced from 230 GPM to 210 GPM. Accounting for water conservation devices incorporated into the design of the building, the demand is further reduced to 168 GPM. For the AC system, the demand was reduced from 74 GPM to 69 GPM. The result is an overall reduced demand from 258 GPM with the ten story project to 237 GPM with the nine story alternative. The demand for fire protection services remains the same for both building alternatives. While the nine story alternative reduces demand on service, the reduction is not sufficient to justify downsizing the service connection to the building.

The Project's domestic water service will tie into the existing system, a 4-inch ductile iron-cement lined pipe (class 52). The 4-inch connection to the 16-inch main in Commonwealth Avenue will include a manual gate valve located between the main and the building (see Figure 7-2).

Based on the hydrant flow test and discussions with BWSC, it is evident that the existing system is adequate to serve both the nine and ten story project alternatives. The Project demand will not have an adverse impact on the existing water distribution system. Additional water conservation measures are described below in section 7.3.

7.3 WATER CONSERVATION

It is beneficial for long-term management and operations to utilize water conservation measures throughout the building and for the site irrigation system. Provided below is information on specific water conservation efforts that will be used. The water conservation savings for the nine story project will result in some additional reduction in water demand over the ten story alternative.

Plumbing Fixtures

All plumbing fixtures installed in this Project will be water conserving. Wall hung or floor mounted water closets will operate on a maximum of 1.6 gallons per flush representing a 55% reduction in water use over the 3.5 gallon per flush fixtures. Lavatories and sinks will be provided with 0.5 gallon per minute flow aerators which represent an 80% savings over the 2.5 gallon per minute fixture. The Project will use "no touch" lavatory faucets and urinals will operate at 1.5 GPM. The building will provide two showers for the janitorial staff; the shower heads will be 2.5 GPM low flow heads. Venturi flow meters, which will reduce wasted water during monthly testing, will be provided on all water pumps for fire protection.

Air Conditioning

A central cooling plant will utilize two 650 ton water-cooled electric centrifugal chillers. Heat rejection will be accomplished by matching cross flow evaporative cooling towers. These cooling towers have high efficiency drift eliminators to minimize water loss due to drift. Maximum make-up water use for the nine story alternative is 36 GPM at full load operation which is reduced from 39 GPM for the ten story alternative. Average make-up water consumption is less than 1/3 of maximum flow. Cooling towers are designed to minimize water waste and water use required for evaporative heat reduction.

A few small size cooling systems are required to provide heat reduction to dedicated areas (i.e. telecommunications room). These systems are air-cooled, closed-loop and do not use any water. Reuse of condensate is usually associated with steam heat systems which are not employed in the building. Due to the relatively low condensate associated with the building, reuse of condensate is not practical.

Irrigation

The landscaped areas will be irrigated using water conserving design principles. Turf areas will be minimized and plant specifications will be selected based on maximum water conservancy. The street trees and interior planting will employ a drip irrigation system distributing water in gallons per hour. The lawn areas will have a spray system which utilizes water conserving nozzles. Each nozzle will deliver water at 2.0 GPM or less. The irrigation controller will have a timer/clock with water sensing shutoff devices including tension meters and rainfall sensors to override the clock when adequate moisture is present in the soil. Short cycles will be set to promote deep root growth and less frequent watering. The site landscaping is the same for both the nine and ten story project alternatives.

7.4 SANITARY SEWER

Existing Condition

The Boston Proper District (2,650 acres) has a sewage collection system which was constructed mostly in the mid-to-late 1800s and expanded through 1930. Smaller sewers in the area, those 6 to 18 inches in diameter, were typically constructed of vitrified clay pipe. Larger sewers were generally constructed of brick and mortar, whereas modern day sewer lines are often reinforced concrete pipe (RCP). Since much of the system serving the area was originally designed as combined sanitary/storm sewer, there are several large diameter pipes in the system. Approximately 25% of the Boston Proper District, including the Project site, is served by the MWRA's Charles River Valley Sewer (CRVS), which flows to Deer Island for treatment via the MWRA Ward Street Headworks. The CRVS was constructed in 1892 of brick and varies in size from 42 inches to 78 inches x 84 inches. Sections of the CRVS have been separated; however, the major portion of the sewer remains combined.

The portion of sewer line located at the building site is beneath the sidewalk in Commonwealth Avenue. This sewer does not combine with any stormwater drains. Site stormwater will discharge into a storm drainage system that outfalls directly into the Charles River. Sanitary sewage from the new School of Management will be discharged to the existing 18-inch sanitary main in Commonwealth Avenue which flows east toward Deerfield Street. This sewer, dating back to 1894, is linked by a series of brick and mortar, and pre-cast concrete manholes. The Sanitary Sewer Distribution System is illustrated in Figure 7-3.

According to the Code of Massachusetts Regulations, 310 CMR 15.02(13), "Estimated sewage flows ... should be considered in relation to actual meter readings of established flows from known or similar installations. Generally, estimated sewage flows will be based on 200 percent of average water meter readings in order to assimilate maximum daily flows." The 200 % factor accounts for infiltration. In accordance with the CMR regulations, average water meter readings were obtained from BWSC on February 2, 1993, for all addresses which may impact the 18-inch sanitary sewer in Commonwealth Avenue between Sherborn Street and Deerfield Street.

A hydraulic analysis was conducted using the data obtained from the BWSC to determine an approximate maximum daily flow in the 18-inch sanitary sewer in Commonwealth Avenue. The results of the analysis showed that this segment of sewer operated at approximately 21% of its capacity, or at 1.01 cubic feet per second (CFS).

Project Impact

The School of Management project will discharge materials into the 18-inch sanitary sewer main in Commonwealth Avenue via a 12-inch polyvinyl chloride (PVC) service connection to the building (see Figure 7-4). This connection will be made using a wye branch connection. The total sanitary discharge generated by the nine story alternative is estimated to be 46,870 GPD (46,547 GPD for school and office occupancy plus 323 GPD wastewater from the air conditioning system). The maximum sanitary flow per day for the nine story alternative is calculated to be 279 gallons per minute (GPM) or 0.6 CFS. The total sanitary discharge for the ten story alternative was estimated to be 49,575 GPD (49,225 GPD for school and office occupancy plus 350 GPD from the air conditioning system). The ten story project maximum daily sanitary flow was calculated to be 300 GPM or 0.7 CFS. The nine story project alternative reflects an estimated discharge reduction of 2,705 GPD when compared to the ten story alternative. However, this reduction in flow does not justify downsizing the sewer connection.

According to calculations, the additional flow from the ten story alternative to the existing 18-inch sanitary sewer system will increase the operational level from approximately 21% to approximately 36% of the pipe's capacity. The nine story alternative will increase the operational level to approximately 34% of the maximum or total of the pipe. The residual capacity will be approximately 66%.

Sewer capacity and demand from the Project was discussed with BWSC staff at meetings and in conjunction with review of the 25% plan submission referenced in Appendix C. BWSC indicated that the existing system is adequate to include the additional flow from the Project. Following notification by the BWSC letter dated November 10, 1992, oil/water separators will be installed in the garage. Oil/water separator designs will meet MWRA and BWSC use regulations. In accordance with the BWSC sewer use regulations, a grease trap serving the canteen and dining room in this building will be installed. Grease trap designs will meet all City of Boston requirements.

7.5 STORMWATER

Existing Conditions

The Project site currently serves as a surface parking lot. It contains a bituminous concrete surface which is graded so that the majority of stormwater runs into two catch basins approximately 70 feet apart located in the eastern section of the parking lot. Stormwater is collected by these catch basins and discharged to the existing 18-inch storm drain in Commonwealth Avenue. This 18-inch line serves the area in and around the site beginning approximately 240 feet west of Sherborn Street and ends at Deerfield where it discharges into the Muddy River Conduit (MRC). The MRC is a 9 x 11 foot combined sewer overflow. The drain in Commonwealth Avenue varies in size from 15 inches to 24 inches. The line was originally constructed by the MBTA and ownership was later transferred to BWSC.

Hydrologic and hydraulic analyses were conducted on the storm drain from its beginning to a manhole located 1,174 feet downstream, and it was determined that the system was not surcharged. The furthest downstream section was calculated to operate at approximately 78% of its capacity for a ten year storm event.

Project Impact

The Project storm drainage system was originally designed to connect to storm drains in Commonwealth Avenue. However, as part of the MOA with MHC, the University agreed to upgrade the private alley and install a new storm drain to reduce flooding in the abutting historic properties. The University decided to upgrade the whole drainage system in the alley from Sherborn Street to Deerfield Street and redesign the connection from the Project to the new system. The alley improvements serve both University and non-University owned buildings in the adjacent historic district. The new storm drain will vary from 24 inches to 30 inches in size along the length of the alley and connect to the Muddy River Conduit in Deerfield Street (see Figure 7-5).

It is anticipated that total site runoff will be reduced in post-development conditions. Virtually the entire site is currently a paved parking lot whereas up to 15% of the building site will be landscaped following Project completion. By decreasing the amount of impervious area and increasing landscaped areas, a lower runoff coefficient will be generated, thereby reducing stormwater inflow.

7.6 CONSTRUCTION

Dewatering

It is anticipated that construction dewatering will be required during construction. The stormwater and groundwater that collects within the excavation support walls, roughly 7/8ths the area of the existing parking lot, will be collected and, if necessary, treated in accordance with the requirements of the BWSC permit and NPDES Exclusion and/or MWRA permit prior to discharge into the stormwater system in Commonwealth Avenue. Low levels of volatile organic compounds have been measured in the groundwater and result from past site usage as a gasoline service station. After the foundation is in place and backfilling is completed, stormwater be discharged into the drainage system designed for the finished building. No groundwater pumping will be required.

Preliminary calculations indicate dewatering of from 5 to 50 GPM during construction, with high flow rates occurring during and following a storm event. During the temporary construction dewatering process, water will be periodically tested and treated if required prior to being discharged into the storm drain in Commonwealth Avenue. The details of how this water will be treated will be in conformance with the discharge permit and will be included in the Construction Documents. Groundwater treatment may be by activated carbon units installed at the site or utilizing air stripping technologies to remove low levels of volatile organic compounds from the water.

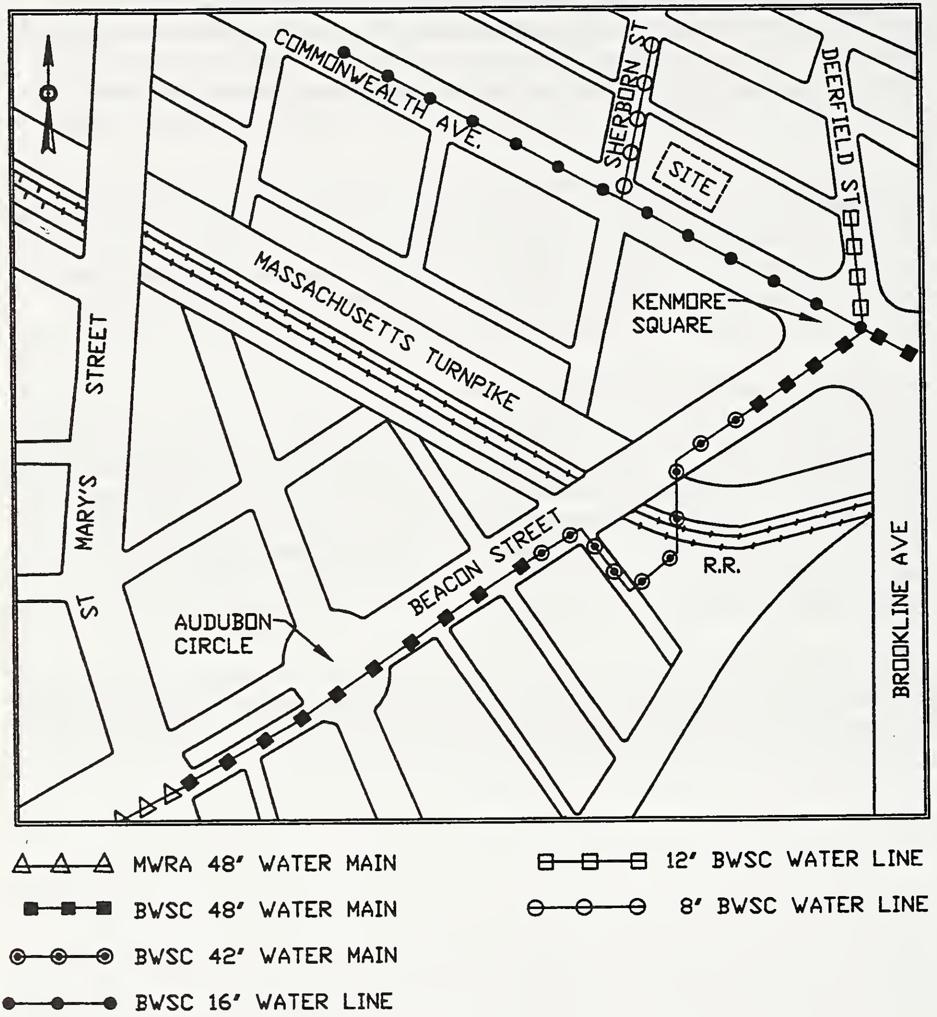
Utility Protection

The proposed excavation and subsurface construction methods are not anticipated to adversely effect adjacent streets, utilities and existing structures. The excavation support system will be designed to protect existing improvements such as buildings, streets, and utilities.

7.7 MITIGATION MEASURES

The utilities analysis indicates that the Project will not impose any unusual or excessive demands on the existing water and sewer systems. The design of the Project includes conservation measures and efficient systems which further reduce demands made by the Project on municipal systems. Therefore, no additional mitigation measures are anticipated. As suggested by BWSC, a connection of the water meter to the phone line will be added to facilitate installation of an automatic meter reading device.

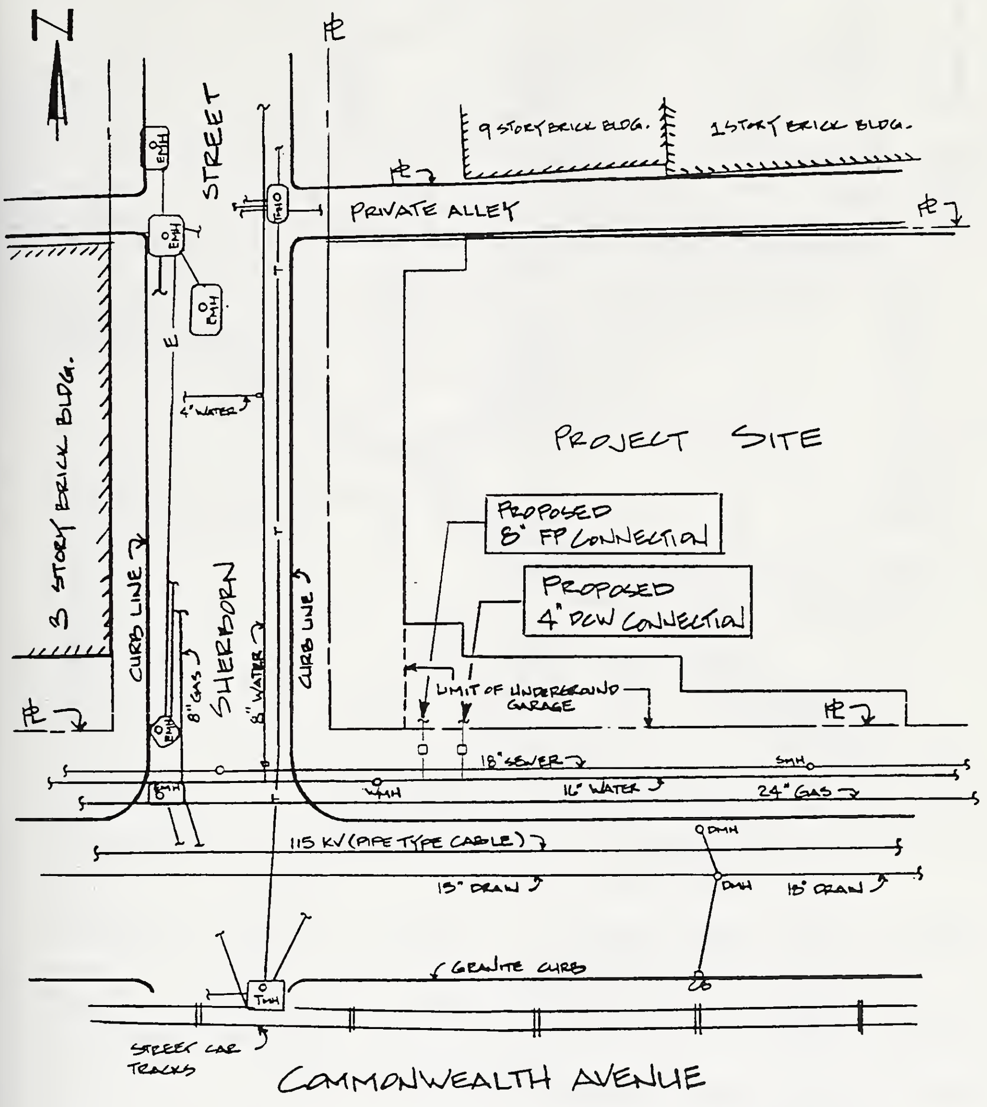
Stormwater runoff will be slightly reduced as a result of the Project since impervious surface will be reduced. The project includes upgrading the whole storm drainage system in the private alley from Deerfield Street to Sherborn Street. This improvement serves non-University owned buildings as well as University owned properties adjoining the alley.



Existing Water Distribution System

Prepared By:
Amman & Whitney

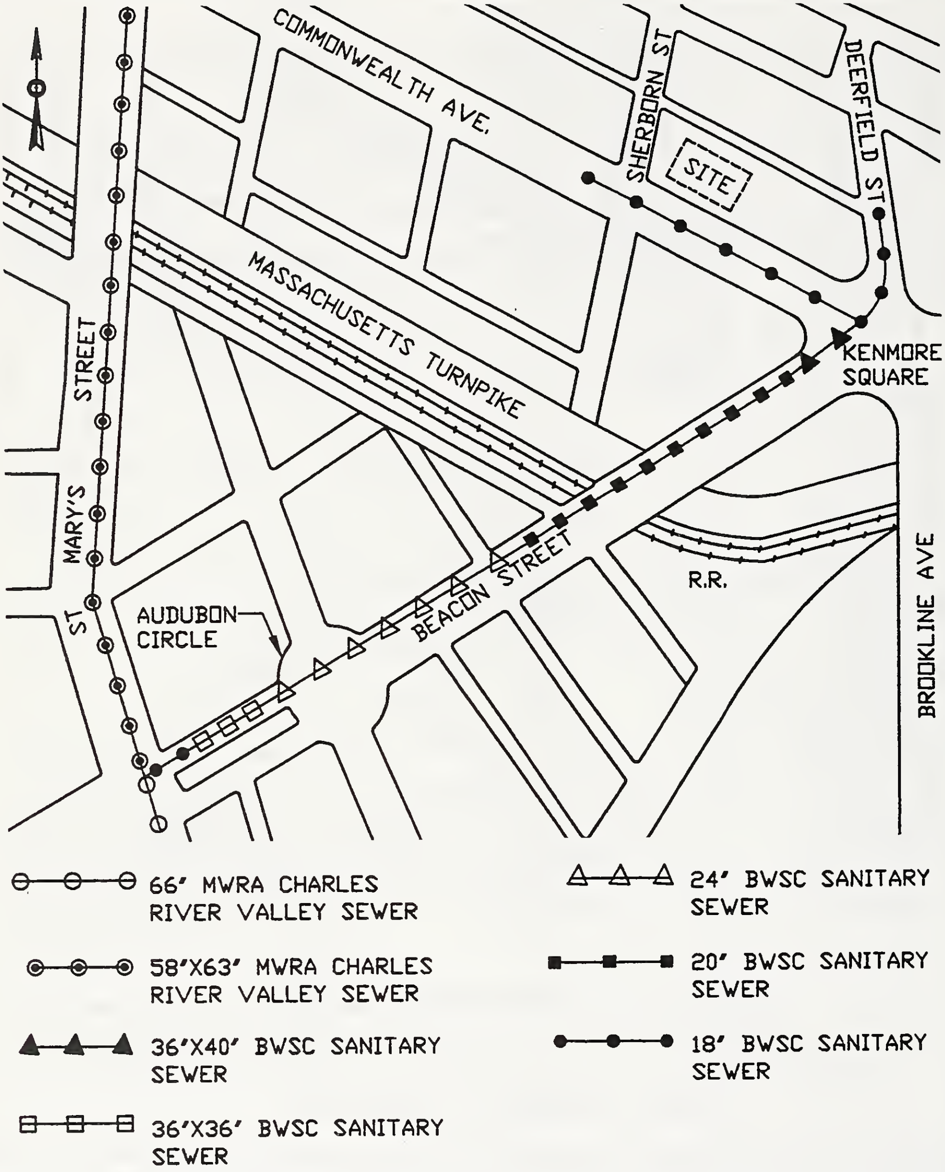
Figure 7-1



Water Connections

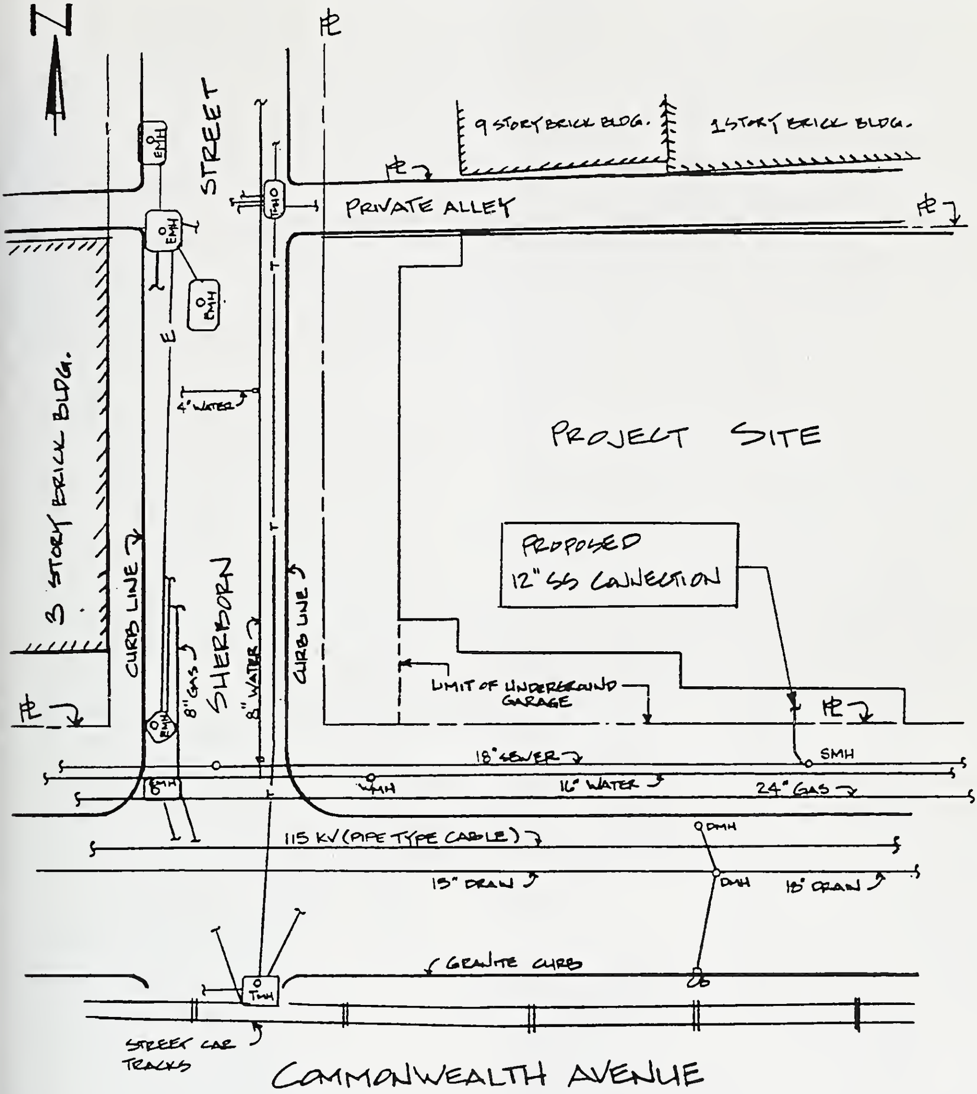
repared By:
Amman & Whitney

Figure 7-2



Existing Sanitary Sewer Distribution System

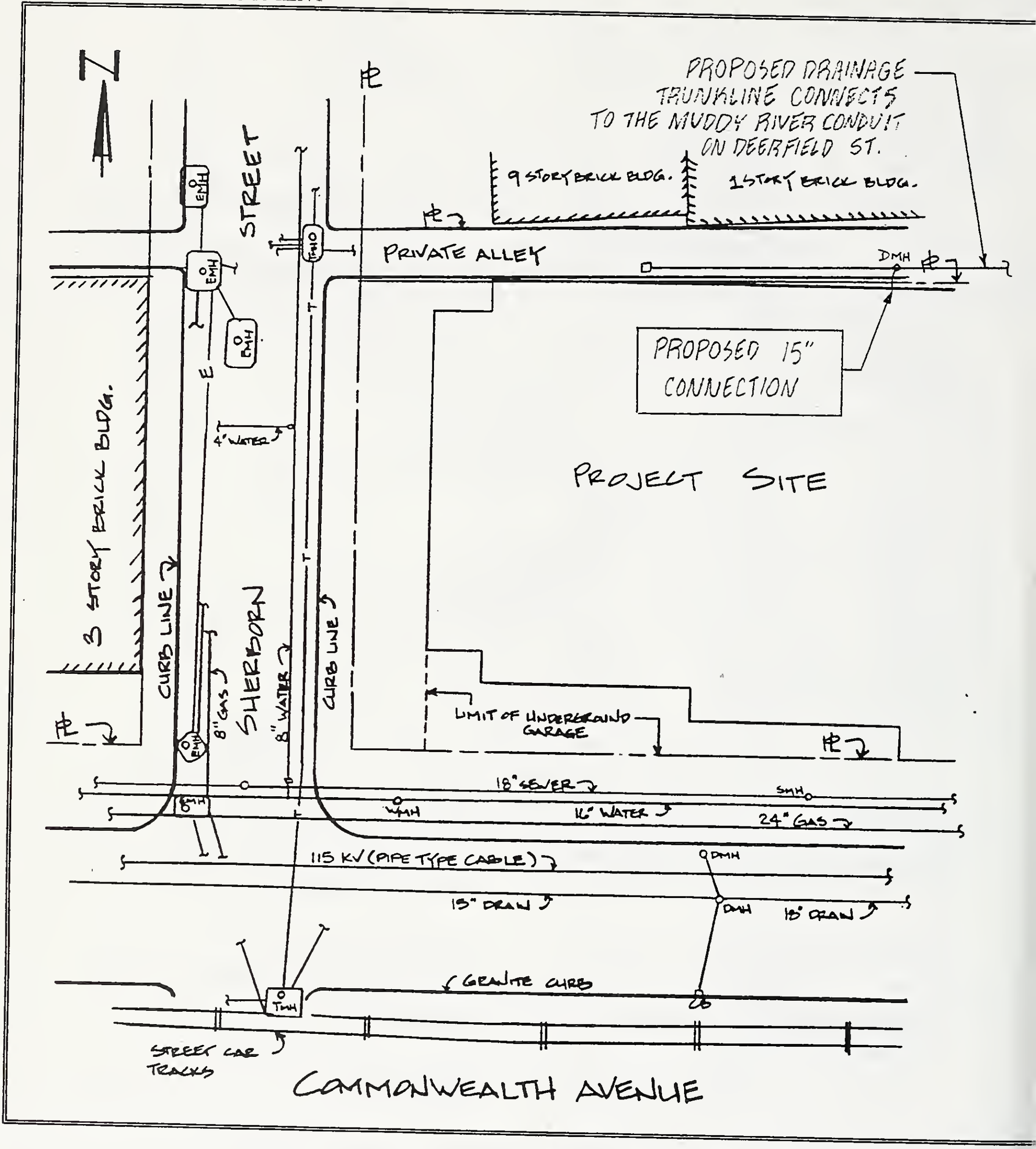
Prepared By: Amman & Whitney	***Figure 7-3***



Sewer Connection

repared By:
Amman & Whitney

Figure 7-4



Storm Drain Connection

Prepared By: Amman & Whitney	**Figure 7-5**

8.0 RESPONSE TO COMMENTS

8.0 RESPONSE TO COMMENTS

The following chapter provides responses to comment letters received on the Draft Environmental Impact Report. Comments were received from the following agencies and individuals.

Agencies and Officials

1. MEPA Certificate on the Draft Environmental Impact Report
2. Massachusetts Historical Commission
3. Massachusetts Bay Transportation Authority
4. Boston Water and Sewer Commission
5. Boston Redevelopment Authority

Organizations

6. National Trust for Historic Preservation
7. Boston Preservation Alliance
8. Society for the Prevention of New England Antiquities
9. Boston University Community Task Force
10. Bay State Road Neighborhood Association
11. Kenmore Resident Group
12. Kenmore Community & Economic Development Corporation
13. Kenmore Association, Inc.
14. Bay State Road Civic Association

Individuals

15. Sara Baker
16. Stephen B. Corn, MD
17. Eugene L. Holt, Ph.D., Esq.
18. Petah D. Steiger, Esq.
19. Yvonne M. Homsy
20. Laurel Kluge

AGENCIES AND OFFICIALS

1. MEPA CERTIFICATE ON THE DEIR

From: Executive Office of Environmental Affairs
Dated: January 28, 1994

Comment # and Response

1.1 Please see Section 3.2.2, Master Plan Consistency.

1.2 A letter has been submitted to the MEPA Unit on March 10, 1994. A copy is included in Appendix B.

1.3 Please see Section 7.5, Stormwater and Figure 7-5, Storm Drain Connection.

1.4 Please see Section 6.4, Construction Disposal Plan.

1.5 A draft Memorandum of Agreement (MOA) has been prepared and is included in Appendix B and is also discussed in Chapter 4.0, Historical Resources.

1.6 Please see Section 3.2.2, Master Plan Consistency.

1.7 Please see Section 5.3, Archaeological Monitoring During Construction. A permit application with a detailed plan has been submitted to the Massachusetts Historic Commission (MHC) for review.

1.8 Please see Section 4.7, Groundwater Level and the Building and Groundwater Level Protection Plan in Appendix D.

1.9 Please see Section 4.7, Groundwater Level and the Building and Groundwater Level Protection Plan in Appendix D.

1.10 Please see Section 4.7.2 Foundation, regarding foundation design.

1.11 Please see Section 4.7, Groundwater Level and the Building and Groundwater Level Protection Plan in Appendix D.

1.12 Please see Section 2.5.2, Landscaping Plan.

1.13 Please see Section 2.5.2, Landscaping Plan.

1.14 Response to comments are found in this chapter.

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, 02202

WILLIAM F. WELD
GOVERNOR
ARGEO PAUL CELLUCCI
LIEUTENANT GOVERNOR
TRUDY COXE
SECRETARY

Tel: (617) 727-9800
Fax: (617) 727-2754

①

January 28, 1994

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	:	Boston University School of Management (and Executive Offices)
PROJECT LOCATION	:	Boston
EOEA NUMBER	:	9202
PROJECT PROPONENT	:	Boston University
DATE NOTICED IN MONITOR	:	December 22, 1993

The Secretary of Environmental Affairs herein issues a statement that the Draft Environmental Impact Report adequately and properly complies with the Massachusetts Environmental Policy Act (M. G. L., c. 30, s. 61-62H) and with its implementing regulations (301 CMR 11.00).

Project Overview

Boston University (BU) proposes to construct a School of Management and Executive Administrative Center at 595 Commonwealth Avenue in Boston. The proposal filed with the Environmental Notification Form (ENF) called for the construction of a building of 366,000 square feet (s.f.) with 10 stories at a finished height of 183 feet. The building has been reduced one story since the ENF was filed, resulting in a reduction of 44,300 s.f. of building area at a finished height of 166 feet. The number of stories is not indicative of the height of the building in this case, because the space will contain auditoriums and other facilities necessitating higher than average floor to ceiling distances. The first six floors of the project will house the School of Management. The upper floors will consolidate the executive administrative space. The project will also involve three stories of subsurface excavation to provide 270 parking spaces.

The project site is located near the Kenmore Square area at the northeast corner of Sherborn Street and Commonwealth Avenue. Currently the site, a 46,950 s.f. rectangle, is used by BU as a surface parking lot for 181 cars. The site is bounded by Howard Johnson's Motor Lodge to the east, and by a BU residence hall to

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the north. The site is adjacent to the Bay State Road - Back Bay West Historic District.

In February of 1987, BU published a Master Plan for the University. Several months later the Master Plan was approved by the Boston Redevelopment Authority (BRA). The Master Plan proposed using a portion of "Parcel Q" for the development of a new School of Management. Parcel Q runs from Sherborn Street to Deerfield Street along Commonwealth Avenue. It also includes the block of Deerfield Street from Kenmore Square to Bay State Road. Parcel Q is an "L" shape.

The Master Plan estimated that the School of Management would be 120,000 s.f. The School of Management is one of two components of the proposed project and, at 227,000 s.f., is slightly less than double the size contemplated by the Master Plan. (1.1)

Review Process

The ENF Certificate dated December 9, 1992 set forth a coordinated review process between MEPA and the BRA in accordance with Article 31 of the Boston Zoning Code and the MEPA Regulations at 301 CMR 11.13 "Special Provision for Coordinated Review of Projects Subject to Both MEPA and BRA Review." This process was supported by the BRA in its comment on the ENF dated November 20, 1992 and it comments on the Notice of Project Change dated March 2, 1993. The Certificate on the ENF called for one document to be prepared and circulated. It was to be an Environmental Impact Report/Project Impact Report (EIR/PIR). The proponent, however, bifurcated the review process by filing a Project Impact Report and not a joint document. The PIR document was reviewed by the Secretary of Environmental Affairs in conjunction with the Notice of Project Change.

The Notice of Project Change Certificate dated March 19, 1993 modified the earlier scope and outlined a way to reestablish a coordinated process. This process was expected to be as follows: if the BRA found the DPIR inadequate, then a new Supplemental PIR/DEIR was to be submitted by the proponent. If the BRA found the DPIR adequate, a DEIR was to be submitted by the proponent and circulated to the BRA and others for comment. A Final PIR/EIR was to be submitted by the proponent in either case. I understand that this course was not followed, and that the BRA has already issued a determination on the project.

When the BRA reviews a project that is subject to MEPA and an EIR is required, the general provisions of the MEPA regulations at 301 CMR 11.01(2) apply. Specifically, agencies (defined in 301 CMR 11.02) can act upon a project after the completion of the Secretary's review of a final EIR and the expiration of a legal challenge period. The relationship of this EIR review to BRA actions is not clear from the discussion in the DEIR (p. I-26). The DPIR stated that the proponent "voluntarily agreed to participate in the Article 31 Development Review Process." The DEIR indicates that the project is not within the boundaries of the Article 31 review area and that the BRA has previously approved a Master Plan for the Boston University Charles River Campus.

I request clarification how the BRA could act on this project prior to completion of MEPA review, and whether the BRA intends to reconsider its determination based on information provided in the FEIR. Since this is a concern that goes beyond this particular review, I ask that the proponent either addresses (1.2) this issue in the FEIR, or prepares a separate response with the BRA and address it to the MEPA office or myself. I hope that this can clarify how the two review processes can or should be coordinated so as to benefit all parties involved.

Water and Sewer

The comments of the Boston Water and Sewer Commission (BWSC) (1.3) indicate that most of its concerns have been addressed in the DEIR. Additional information on stormwater discharge is needed and should be supplied in the FEIR. Additionally, the Oil and Hazardous Materials section of the DEIR indicates that some treatment after dewatering may be required. Consultation with both BWSC and the MWRA is recommended regarding the requirements (1.4) of this pretreatment. The Final EIR should report on the status of pretreatment planning.

Historic and Archaeological

Impacts to historic and archeological resources resulting from the development of the proposed project were measured in the DEIR by the following: shadow analysis, daylight analysis, urban design evaluation, and evaluation of wind impacts, archaeological impacts and groundwater impacts.

The comments of the MHC indicate that additional consultation is necessary to finalize additional mitigation measures necessary to protect the integrity of the adjacent (1.5) historic district. A Memorandum of Agreement pursuant to MGL Chapter 254 should be prepared and included in the FEIR.

During the comment period, I received thoughtful comments from The Society for the Preservation of New England Antiquities (SPNEA), Preservation Boston, and the National Trust for Historic Preservation. The comments raise two general issues with respect to impacts on historic resources: the depth of the excavation and its possible impacts to groundwater (discussed below), and the height and massing of the building with respect to the context of the area.

The comments of SPNEA note that the size of the building is necessitated by the combination of the two functions (School of Management and BU Administrative Offices), essentially "piggybacking" them in the same structure, and that the DEIR presents no compelling case for such a combination, i.e. there is no connection between these functions internally and they are served by separate entrances. The DEIR states that the project is consistent with the Master Plan because the School of Management has 126,000 s.f. of assignable space but, beyond that, does not really clarify the relationship of this project to what was proposed in the Master Plan. I ask that the FEIR provide more of an explanation and, in doing so, address the comments and concerns of SPNEA, Preservation Boston and the National Trust. (1.6)

The site is considered a possible location for a prehistoric fishweir or similar features. The proponent has committed to work with the BU Office of Public Archaeology to oversee the archaeological analysis and excavation of the site during construction. As noted in the comments of MHC, additional information will be required with respect to the proposed monitoring for the excavation period. (1.7)

Geotechnical

The DEIR discusses geotechnical impacts in a cursory manner, providing statements about groundwater impacts and mitigation measures, but no data or analysis to support the conclusions. Groundwater impacts should be carefully analyzed for this project. Significant potential exists to damage the wood pile foundations of historic structures off site during construction and as a result of long term changes in groundwater conditions post construction. (1.8)

In the late 19th Century, over 450 acres of marshland was filled in the area known today as "Back Bay." Fashionable brick townhouses were built in many of these filled areas, such as the Architectural Conservation District adjacent to the project site. For these structures, the standard foundation practice was support by untreated timber piles, typically 7.5 to 12 m (25 to 40 ft) long, driven in the sand layer below the fill and original organic layers. These foundations generally perform well, except when they are exposed to air. These structures can be "affected adversely if the groundwater table is lowered by changes in drainage patterns, by dewatering during construction, or by pumping water from deep aquifers.... As long as the piles are kept constantly waterlogged, the wood will not rot and the piles can be considered permanent."[1]

Maintenance of groundwater levels is a major concern in this area as it is vital in the preservation of the historic structures. The DEIR anticipates that the groundwater level will fluctuate during the construction period. Is there a range of fluctuations that might reasonably be expected? At what level of fluctuation might off site impacts be anticipated? What actions will be taken if the groundwater fluctuates below acceptable levels? Who will be notified and what remedial actions will be implemented? (1.9)

Apart from construction, this project, with its three levels of parking below grade, presents a significant long term risk to groundwater levels in the area. The elevation of groundwater on and off site may be affected, and the direction of flow patterns may be altered as well. The comments of SPNEA note that 181 surface parking spaces are being replaced by 270 subsurface parking spaces. Every effort should be made to reduce the risk of impacting groundwater elevations and patterns, including consideration of reducing the size of the proposed excavation and the number of parking spaces proposed. (1.10)

The FEIR must present a thorough groundwater analysis, based on detailed information on depth to groundwater, groundwater flow and soil conditions at and around the site, especially in the adjacent historic district. The FEIR must identify and evaluate long and short term potential impacts of the proposed project on groundwater, as well as the possible impacts to historic resources resulting from changes in groundwater conditions. The long term groundwater monitoring plan needs significantly more information and should be developed in greater detail in the FEIR. Where should observation wells be placed and how frequently should they be monitored? To whom will this data be reported? (1.11)

Wind Impacts/MBTA Impacts

The project will produce significant wind impacts at the MBTA stops on Commonwealth Avenue in the vicinity of the project. The DEIR notes that the wind conditions at these locations (17 and 33) will exceed the level of comfort for standing, sitting and walking. Pedestrian waiting areas have been proposed in the DEIR as mitigation. The FEIR should provide plans for these

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[1] Dr. Harl P. Aldrich, Jr., "Preserving the Foundations of Older Buildings: The Importance of Groundwater Levels," Technology and Conservation, Vol. 4. No. 2, Summer, 1979, p.32.

shelters, an analysis of how these shelters would function and a
discussion on how the impacts of these wind conditions will be
mitigated at these locations. The proponent should ensure that (1.12)
sufficient shelter is provided to meet the need at these
locations.

I note that the quantitative analysis of wind impacts has
improved since the DPIR. The FEIR should provide additional
information on the proposed mitigation. The proponent has
indicated that the landscaping plan is part of the wind
mitigation package. Therefore, a detailed landscaping plan (1.13)
should be submitted with the FEIR. The FEIR should explain how
the landscaping contributes to the mitigation and how long term
success will be achieved. What is the long term reliability of
using landscaping for mitigation of wind impacts? This
discussion should evaluate the proposal with respect to
applicable design standards (American Society of Landscape
Architects or other applicable professional standards).

Comments

The FEIR should respond to the substantive comments received (1.14)
on the DEIR.

January 28, 1994
Date

Trudy Coxe

Comments:
BWSC
MHC
MBTA
SPNEA
BRA
Preservation Boston
National Trust for Historic Preservation
Y. Homsey
S. Corn
Bay State Road Association
BU Community Task Force
Kenmore CEDC
Kenmore Residents Group
Baker Design (two letters)
E. Holt
P. Steiger
Bay State Road Civic Assoc.
L. Kluge

TC/JD/jd

P:DEIR9202

2. MASSACHUSETTS HISTORICAL COMMISSION

From: Judith B. McDonough, Executive Director
Date: January 20, 1994

Comment # and Response

2.1 The archaeological monitoring design may be found in Section 5.3, Archaeological Monitoring During Construction. A permit application with a detailed plan has been submitted to the Massachusetts Historic Commission for review.

2.2 A draft Memorandum of Agreement is provided in Appendix B and discussed in Chapter 4.0, Historic Resources.

JD

②

January 20, 1994

RECEIVED
JAN 2 1 1994
MEPA

Ms. Trudy Coxe
Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202

ATTN: MEPA UNIT

RE: Boston University School of Management, 595 Commonwealth Avenue
Boston, Massachusetts; EOEA No. 9202

Dear Secretary Coxe:

Staff members of the Massachusetts Historical Commission (MHC) have reviewed the Draft Environmental Impact Report (DEIR), which responded to the Commission's earlier concerns regarding the proposed construction of the Boston University School of Management. MHC offers the following comments to the DEIR.

MHC staff members are pleased that the preferred alternative presented in the DEIR has been reduced in height from the original 184 foot proposal to 166 feet and its gross square footage reduced by 11 percent in response to concerns regarding potential visual and shadow impacts of the new construction on the adjacent Bay State Road-Back Bay West Historic District and the Charles River Basin Historic District. This reduction in height and massing is a decided improvement over the original proposal. I am satisfied that possible examination of alternative sites for the School of Management is not necessary and is no longer an issue.

MHC staff is also encouraged that the Boston University Office of Public Archaeology will assist MHC during the construction phase of the project as the site may contain the archaeological remains of an ancient Indian fishwire. Therefore, MHC staff request the opportunity to review more detailed information on the archaeological monitoring proposed for the period of excavation and construction. This cooperation is an outstanding example of a public-private partnership, and indicates that institutional development and historic preservation need not be mutually exclusive. (2.1)

Finally, as you are aware, MHC staff made an adverse effect finding on March 13, 1993. However, this finding was made prior to the project proponent reducing the height and gross square footage of the original proposal. MHC now recommends consultation to finalize any additional mitigation that may be

Massachusetts Historical Commission, Judith B. McDonough, *Executive Director, State Historic Preservation Officer*
80 Boylston Street, Boston, Massachusetts 02116 (617) 727-8470
Office of the Secretary of State, Michael J. Connolly, *Secretary*

necessary to protect the adjacent historic district. As outlined in Chapter 254, the results of this consultation should be finalized in a Memorandum of Agreement, a signed copy of which should be included in the Final EIR. ②.2

These comments are provided to assist in compliance with Massachusetts General Laws, Chapter 9 Sec. 26-27c, as amended by Chapter 254 of the Acts of 1988 (950CMR 71.00) and MEPA.

If you have additional questions, please contact Allen Johnson of this office.

Sincerely,

Judith B. McDonough

Judith B. McDonough
Executive Director
Massachusetts Historical Commission
State Historic Preservation Officer

JBM:JMM

cc: Boston Landmarks Commission
Boston Preservation Alliance
National Trust for Historic Preservation
Society for the Preservation of New England Antiquities
DEP/DWWR, Northeast Regional Office
MWRA
John Krajovic, MDC

3. *MASSACHUSETTS BAY TRANSPORTATION AUTHORITY*

From: Jane O'Brien, Project Coordinator/Planning
Date: January 14, 1994

Comment # and Response

3.1 The Final Project Impact Report (FPIR), approved by the City of Boston, indicated the need for additional parking spaces under certain site-use conditions such as full use of the executive education center. The actual number of parking spaces provides a compromise solution which takes into account several factors including:

- proposed on-site uses;
- travel management plan that promotes alternative modes of transportation;
- desire to minimize parking impacts in adjacent neighborhoods;
- accommodating the need for additional parking spaces on the East end of the Boston University Campus; and
- structural and economic feasibility of below-grade parking in the building.

The FPIR also included an analysis which demonstrated that the Project will not have a significant effect on traffic conditions in the area. Similarly, the reduction of those few spaces associated with the reduction in building square footage, would not result in a significant improvement in traffic conditions.

3.2 The design of the Blandford Street trolley stop improvements and surface treatments of the crosswalk and areas associated with the stop will employ safe materials for wheelchair and other pedestrians. Conceptual plans have been submitted for review and the proponent will continue to work closely with the MBTA on the final design.

3.3 Please see Section 2.5.2, Landscaping Plan on selection of safe brick materials.

JD

③

Massachusetts Bay Transportation Authority

William F. Weld, Governor
Argeo Paul Cellucci, Lieutenant Governor
James J. Kerasiotes, Secretary and MBTA Chairman
John J. Haley, Jr., General Manager

January 14, 1994

RECEIVED
JAN 18 1994
MEPA

The Honorable Trudy Coxe, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202

Attention: Ms. Jollene Dubner, MEPA Unit

Subject: Boston University - School of Management
Draft Environmental Impact Report (DEIR)
EOEA No. 9202

Dear Secretary Coxe:

The Massachusetts Bay Transportation Authority (MBTA) has reviewed the DEIR for the Boston University School of Management, 595 Commonwealth Avenue, Boston. Listed below are areas of concern to the MBTA.

The Authority is pleased Boston University has offered to reduce the size of the proposed School of Management building from the original ten floors to nine floors, resulting in a 44,300 square foot reduction in space. The proposal, however, does not offer a comparable reduction in the number of parking spaces. A reduction in parking spaces and the resulting decrease of vehicles could improve the operating capacity of intersections in the vicinity of the structure. (3.1)

The Authority is also pleased that Boston University recognizes the effect the proposed structure will have on MBTA services. The design improvements for the Blandford Street trolley stop, committed to by Boston University, will provide a safer, more comfortable area at which to wait for transit service. The improvements will also provide Boston University with a transit stop appropriate for the new structure. (3.2)

The MBTA Safety Department noted at the August 31 meeting that the use of brick as a surface treatment for the crosswalk should be discouraged because of the difficulty it poses for wheelchairs and the reduced stopping ability resulting from the slick brick surface. The Authority suggests using a material which provides better traction at the crosswalk. Thank you. (3.3)

Sincerely,

Jane O'Brien

Jane O'Brien
Project Coordinator/Planning

4. *BOSTON WATER AND SEWER COMMISSION*

From: John P. Sullivan, Jr., P.E., Chief Engineer
Date: January 21, 1994

Comment # and Response

4.1 Please see Section 7.5, Stormwater and Figure 7-5, Storm Drain Connection.

4.2 The proponent will provide a telephone line link to the water meter to accommodate an automatic reading device as requested.

Boston Water and Sewer Commission

425 Summer Street
Boston, MA 02210-1700
617-330-9400
Fax 617-330-5167

RECEIVED
JAN 25 1994
MEPA

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(4)

January 21, 1994

Secretary Trudy Coxe
Executive Office of Environmental Affairs
20th Floor
100 Cambridge Street
Boston, MA 02202

Re: B.U. School of Management, DEIR, EOEA #9202

Dear Secretary Coxe:

The Boston Water and Sewer Commission has reviewed the Draft Environmental Impact Report for the above referenced project.

The proposed project consists of the construction of a new 9-story, 321,700 square foot building at 575-595 Commonwealth Avenue on the Boston University campus. The new building will contain classrooms, computer rooms, a 400 seat lecture hall, a library, academic offices, a 170 seat canteen and lounges. The project will also include three levels of underground parking.

Peak water demand for the project is estimated to be 237 gpm. Sanitary flow for the project is projected to be 49,575 gallons per day. The water demand and sewer flow estimates include water required for air conditioning purposes. These flows were calculated based on Title 5 flow estimates.

Boston University has adequately addressed most of the Commission's concerns about the project including construction dewatering, utility protection during construction, disposal of contaminated soils and water from the site, installation of a grease trap in the canteen, installation of oil/water separators in the parking garage, and water conservation.

However, the Commission requires additional information regarding the discharge of stormwater from the site. Specifically the Commission requires the proponent to include in its site plan the location of the proposed connections to the (4.1)

Commission's storm drain system and the storm drain outfall to which the discharge will be directed.

The Commission also requests that access from the water meter to a telephone line be provided so that the meter may be connected to an automatic meter reading (AMR) device. For details regarding the installation of AMR, the proponent should contact Mr. Mark Aigen of this office. (4.2)

Thank you for the opportunity to comment on this project.

Yours truly,
Amy M. Keith for
John P. Sullivan, Jr., P.E.
Chief Engineer

ak
cc: P. Rinaldi, B.U.
P.J. Foley, BWSC
S. Shea
L. Blank
R. Mertens

5. *BOSTON REDEVELOPMENT AUTHORITY*

From: Paul Reavis, Assistant Director for Engineering and Design Services
Date: January 27, 1994

Comment # and Response

5.1 Please see Section 1.6, Community Services and Benefits for clarification on tax status.

5.2 Please see Figure 4-13 for the corrected B-4 Zoning perspective as described in Section 2.2.6 B-4 Zoning Alternative. Please note that this alternative would be taller (approximately 174 feet high) than the preferred nine story alternative. However, it is shifted toward Commonwealth Avenue.

5.3 A meeting was held with David Carlson of the BRA (2/16/94) to discuss the best approach to daylight study classifications. It was recognized that the BRADA program has severe limitations in the way it depicts daylight values. Among the major limitations, the program does not recognize sides or backs of buildings and does not always handle setback and lot size information in a consistent manner. It was also recognized that the graphic depiction is not meant to look like a realistic view perspective. While it was agreed that the analysis presented in the DEIR was accurate, we identified alternative methods of conducting the analysis which would respond to the two alternatives suggested in the BRA letter.

a) A view limited to the dormitory.

Mr. Carlson suggested we use the location on Bay State Road centered between the dormitory towers and crop the side property lot lines along the dormitory sides. It was also suggested to add lines to the dormitory which would create the effects of sides and backs of the building.

b) A view centered on the open space adjacent to the east side of the Boston University dormitory.

It was agreed that due to the limitations of the BRADA program and the particular circumstances of the buildings adjacent to the open space, this particular view would not likely produce a usable analysis. Instead, it was suggested that a view of the Project with no other buildings would offer some idea of the daylight impact as it might be perceived through a hypothetical open space on Bay State Road. Therefore, an analysis of the Project standing alone is added to the daylight analysis.

For consistency, it was also agreed that northern property lines for all alternatives would be set along Bay State Road (instead of setting the property line back at the alley for the Project).

The analyses were run again based on the above guidelines. The results are summarized as follows:

View	Daylight Value
Project Building Alone	26.7%
Existing Boston University Dormitory	28.0%
Project and Boston University Dormitory	35.8%
Existing Brownstones	38.5%

The daylight values change slightly with the alternative analyses. The Boston University dormitory indicated a slightly higher daylight value of 28.0% and the proposed Project with the dormitory indicated a higher daylight value of 35.8%. The Project building alone indicated a daylight value of 26.7%. The analysis for the brownstones did not change; therefore, the values also remained the same. These results still support the conclusion that the potential daylight impacts of the Project are reasonable as compared to the daylight value of typical brownstones on Bay State Road at 38.5%.

These revised analysis results were reviewed with Mr. Carlson (2/28/94) to ensure that they reflected his guidelines. Also, see Section 4.6.4, Daylight.

5.4 Please see Section 7.4 of Chapter 7.0, Public Utilities for clarification of total and residual capacity impacts of the Project on sanitary sewer.

5.5 Figure 7-3 is correct based on information provided by the Boston Water and Sewer Commission (BWSC). This segment of the sewer distribution system has not been identified as being affected by the Project. No adequacy problems have been identified by BWSC during on-going meetings regarding the Project.

5.6 Construction drawings have been submitted to the BRA for final review.

Boston
Redevelopment
Authority

Clarence J. Jones, *Chairman*
Paul L. Barrett, *Director*

RECEIVED
JAN 27 199
MEPA

JAN 27 1994

JD

⑤

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

ATTENTION: MEPA UNIT

Re: EOEA #9202 - Boston University School of Management/Draft Environmental Impact Report

Dear Secretary Coxe:

Pursuant to regulations implementing M.G.L., Chapter 30, Sections 62-62H, the Boston Redevelopment Authority has reviewed the above-referenced Draft Environmental Impact Report and submits the following comments.

The Draft Environmental Impact Report for the Boston University School of Management project is, in many respects, similar to the Final Project Impact Report filed with the Boston Redevelopment Authority (BRA) under the Article 31 review process, although the analyses were limited to those issues included in the Secretary's scope of March 19, 1993 (Certificate of the Secretary of Environmental Affairs on the Notice of Project Change). The Authority's staff has completed its review of the Final PIR and will be issuing an Adequacy Determination to Boston University. Further, on June 24, 1993, the Authority approved the School of Management project and authorized the Director to recommend to the Zoning Commission the establishment of a Planned Development Area (PDA) designation for the project and to recommend that the Board of Appeal grant the necessary zoning relief.

The original School of Management design proposed a ten-story building, approximately 184 feet in height, containing approximately 366,000 gross square feet. In response to concerns expressed through city and state review processes about height and massing, a reduced nine-story building alternative was developed and is now the current proposal. This alternative reflects an 18-foot reduction in height and an 11% reduction in size to approximately 321,700 gross square feet. We believe that this reduction has resulted in several environmental benefits, including a reduction in pedestrian level winds over the existing (no-build) condition and reduced shadow impact, particularly in winter mornings on the Esplanade parkland. No unacceptable wind conditions are predicted to occur within the Bay State Road historic district,and along Sherborn Street winds are expected to improve under the Build condition. Some increases are predicted in the alley between

One City Hall Square
Boston, MA 02201-1007
Telephone (617) 722-4300
Fax (617) 367-5916

the proposed project and the existing B.U. dormitory (channeling effect), but since the alley probably will have little pedestrian use, increases here should not be a significant problem.

We do have some specific comments with respect to the Draft Environmental Impact Report, as follows:

(1) Pg. 1-15 (Tax Status): There is a discrepancy in the amount of total tax payments. In the first paragraph, fiscal year 1992 total tax and in-lieu-of-tax payments total $2.231 million; but the second paragraph states the University has paid only $2 million in tax and in-lieu-of-tax payments since 1980. Clarification or correction is needed. (5.1)

(2) Figs. 4-13, 4-16, 4-20: There appears to be a significant discrepancy in the size of the B-4 Zoning building as shown in Fig. 4-13 when compared to the other two figures. The height in Fig. 4-13 appears to be significantly underestimated (at least visually). (5.2)

(3) Pp. 4-56 & 4-113 & Fig. 4-53: The daylight analysis of the proposed building from Bay State Road appears grossly underestimated (this may be a problem with the computer program). We recommend that for a more accurate description, the field of vision should be limited to the existing dormitory and that a second view center on the open space between the dormitory and the adjacent Bay State Road residences. (5.3)

(4) Pg. 7-5 (Sanitary Sewer): Although it is stated that additional flow from the project would increase the operational level of the existing sewer line serving the project site (Commonwealth Ave.) from approximately 21% to 36% of the pipe's capacity, it is unclear whether this refers to total capacity or residual capacity of the pipe. This should be clarified. It is the latter that is the critical value for evaluation. (5.4)

(5) Fig. 7-3: If this figure is accurate, it would appear that a short 18-inch sanitary sewer segment at the intersection of St. Mary and Beacon Streets acts as a bottleneck connecting from a 36" x 36" sewer to a 58" x 63" sewer segment. This should be clarified. (5.5)

Finally, we wish to note that this project is continuing to undergo design review by the Authority. In particular, we believe that a refinement of the building's facade design is appropriate, and the final construction document approval will be contingent upon a satisfactory resolution of this issue. (5.6)

Sincerely,

Paul Reavis
Assistant Director for
Engineering and Design Services

c: Paul Rinaldi

ORGANIZATIONS

6. NATIONAL TRUST FOR HISTORIC PRESERVATION

From: Vicki Jo Sandstead, Director
Date: January 21, 1994

Comment # and Response

6.1 Boston University has worked closely with the Massachusetts Historical Commission (MHC) to develop a Memorandum of Agreement (MOA) which identifies measures which mitigate potential impacts on the historic district. The draft MOA may be found in Appendix B and is discussed in Chapter 4.0, Historic Resources.

6.2 Boston University is committed to protect groundwater levels on abutting properties during construction. The MOA with MHC requires the implementation of a Building and Groundwater Level Protection Plan. The Building and Groundwater Level Protection Plan may be found in Appendix D, and is discussed in Section 4.7.2, Foundation.

BC

⑥

National Trust for Historic Preservation

RECEIVED
JAN 31 199
MEPA

January 21, 1994

Secretary Trudy Cox
Executive Office of Environmental Affairs
100 Cambridge Street, 20th floor
Boston, MA 02202

RE: Boston University School of Management
595 Commonwealth Avenue, Boston
EOEA No. 9202

Dear Secretary Cox:

The National Trust for Historic Preservation has reviewed the Draft Environmental Impact Report (DEIR) for the proposed Boston University School of Management at 595 Commonwealth Avenue. The National Trust first commented on the proposed building in a letter to the Executive Office of Environmental Affairs dated October 28, 1993.

The National Trust for Historic Preservation is a congressionally chartered, nonprofit organization whose mission is to foster an appreciation of the diverse character and meaning of our American heritage and to preserve and revitalize the livability of our communities by leading the nation in saving America's historic environments. The National Trust is a membership organization with over 250,000 members nationwide, and regularly takes advocacy positions on historic preservation issues in support of its congressional mandate. The Northeast Regional Office of the National Trust represents the programs of the National Trust to the six New England states and New York.

In our October letter, we stated that we believe that the project can have a positive impact on Kenmore Square and Commonwealth Avenue, but that the proposed height and massing of the building will be detrimental to the significant historic resources in the area.

We have had an opportunity to meet with representatives from Boston University to discuss the height and massing of the building. Although we are pleased that the University has responded to community concerns by reducing the height of the building from 184 feet to 166 feet, we are still concerned that the new building will be out of character with the historic district adjacent to it. As we stated earlier, the buildings in the Bay State Road/Back Bay West Architectural Conservation District and the Charles River Basin are primarily late 19th-and 20th-century rowhouses that are no more than five stories high.

Accordingly, we ask the state to urge Boston University to review the current design and better (6.1)
adapt it to make it more compatible with the neighboring historic resources. Furthermore, since
we understand that the University will be excavating three levels below grade in order to
accommodate 270 parking spaces, we request that MEPA require the University to protect the (6.2)
groundwater level during construction so as not to damage the abutting historic resources.

We very much appreciate your consideration of these concerns. If we can be of assistance, please feel free to contact Claudia Sauermann Wu at 617-523-0885.

Sincerely,

Vicki Jo Sandstead

Vicki Jo Sandstead
Director

cc: Mayor Tom Menino
Ellen Lipsey, BLC
Susan Park, BPA
Paul Barrett,BRA
Judith McDonough, MHC
Brian Pfeiffer, SPNEA
Peter Steiger, Esq.
Jamie Fay, Fort Point Associates

7. BOSTON PRESERVATION ALLIANCE

From: Susan Park, President
Date: January 21, 1994

Comment # and Response

7.1 Boston University has worked closely with the Massachusetts Historical Commission (MHC) to develop a Memorandum of Agreement (MOA) which identifies measures which mitigate potential impacts on the historic district. The draft MOA may be found in Appendix B and is discussed in Section 4.7.2, Foundation.

BOSTON PRESERVATION ALLIANCE

⑦

January 21, 1994

RECEIVED
JAN 21 1994
MEPA

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202

Re: Boston University School of Management, 595 Commonwealth Avenue
EOEA No. 9292

Dear Secretary Coxe:

The Boston Preservation Alliance has reviewed the Draft Enviornmental Impact Report (DEIR) for the new Boston University School of Management building at 595 Commonwealth Avenue. The Alliance offers the following comments.

The Alliance acknowledges that the height of the building has been reduced from 184 feet (including mechanicals) to 166 feet (including mechanicals). However, the height and massing of the proposed building remains visually overwhelming to the adjacent Bay State Road/Back Bay West Historic District and the Charles River Basin Historic District.

The proposed height of the building is 80 to 100 feet higher than the row house buildings in the Bay State Road/Back Bay West Historic District and is out of character with the historic resources surrounding it.

Accordingly, the Boston Preservation Alliance requests that MEPA require Boston University to reduce the volume and height of the proposed School of Management building at 595 Commonwealth Avenue. (7.1)

Sincerely,

Susan Park

Susan Park
President

cc: Judith McDonough, MHC
Ellen Lipsey, BLC
Paul Barrett, BRA
Claudia Sauermann Wu, Esq.
NTHP, NERO
Jamie Fay, Fort Point Associates
Peter Steiger

Old City Hall, 45 School Street, Boston, Massachusetts 02108 Telephone 617 367-2458

8. SOCIETY FOR THE PRESERVATION OF NEW ENGLAND ANTIQUITIES

From: Brian Pfeiffer, Director of Stewardship
Date: January 21, 1994

Comment # and Response

8.1 Please see Section 3.2.2, Master Plan Consistency.

8.2 The University concurs that it is an absolute necessity to protect abutting structures from any potential damage caused by fluctuation in groundwater levels during and after construction. Any substantial building with a subsurface basement would extend down into groundwater levels on this site and would, therefore, involve similar construction excavation requirements. Furthermore, the construction systems selected do not involve sheet piles or deep piles which would involve vibratory or impact pile driving which could create damage to historic structures and adjacent buildings. The Building and Groundwater Level Protection Plan is provided in Appendix D and discussed in Section 4.7.2, Foundation.

8.3 Please see response 6.2 above. Considerable time and attention has been given to excavation methodology and foundation design. No foundation system or excavation support systems are considered for construction which do not provide adequate protection of structures. The Building and Groundwater Level Protection Plan may be found in Appendix D. Also see the monitoring program in Section 4.7.2, Foundation.

8.4 Project has already been reduced in height and volume reducing potential negative impacts on the historic district. Further, a Memorandum of Agreement (MOA) is being finalized with the Massachusetts Historical Commission which provides for further mitigation of the potential impacts on the historic neighborhood. The draft MOA may be found in Appendix B and is discussed in Chapter 4.0, Historic Resources.

Society
for the Preservation
of New England
Antiquities

Harrison Gray Otis House
141 Cambridge Street
Boston, Massachusetts 02114
617 227-3956

8

RECEIVED
JAN 2 5 1994
MEPA

January 21, 1994

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street - 20th floor
Boston, Massachusetts 02202

RE: Boston University School of Management
595 Commonwealth Avenue
EOEA No. 9202

Dear Secretary Coxe:

I am writing on behalf of SPNEA to re-iterate the concerns expressed in my letter of November 15, 1993 regarding the project cited above.

Having recently reviewed the Draft Environmental Impact Report (EIR) for this project and having attended a presentation by Boston University, I continue to believe that the project in its present form will have a negative effect on the neighboring Bay State Road/Back Bay West Architectural Conservation District. Two aspects of the projects are of special concern, namely, the height of the proposed building and the depth of excavation for underground parking.

Although reduced slightly from the previous proposal, the building would still rise to 166' inclusive of penthouses. At this height it would be nearly four times as high as the rowhouses which contribute to the historical significance of Bay State Road and nearly twice as high as the modern dormitories at 140 Bay State Road, which are already intrusive elements within the Architectural Conservation District.

The proposed building's size is necessitated by the decision to combine offices for the general administration of the University and a facility for the entire School of Management within a single structure. The EIR offers no compelling argument as to the necessity of housing these unrelated departments together. Indeed, the building is planned in such a way that each function has a separate entry and spaces. Given the large amount of land owned by the University as well as the extensive amount of it that is above-ground parking, the necessity of linking these two 8.1

departments seems to arise more from internal management decisions that from functional necessity.

A second area of concern continues to be the depth of excavation that will be required to expand University parking spaces from the 180 currently on the site to 270. Aside from the environmental concerns surrounding increased parking and traffic, there is the worrisome possibility that the excavation may reduce ground water levels in surrounding areas and cause irreversible damage to the wooden pilings on which buildings on Bay State Road are built. (8.2)

The EIR states that methods of subsurface construction "are not anticipated to adversely effect adjacent streets, utilities and existing structures", but it offers no assurance that they will not be affected. No one could responsibly assure that no damage will occur, as has already been seen in Boston during the construction of the John Hancock Tower. Given the potential for human error and unanticipated conditions, any excavation of this type should be regarded as potentially hazardous where neighboring buildings are set on wooden pilings. (8.3)

The potential negative effects of this project would be vastly reduced if the project were to be scaled down to a smaller size and the amount of underground parking reduced. (8.4) Based on information contained within the EIR, I believe that development of the site for the School of Management alone would produce a building that is both consistent with the recommendations of the Boston Civic Design Commission and compatible in scale with the adjoining Architectural Conservation District.

I urge you to seek a reduction in the size of this project.

Sincerely yours,

Brian Pfeiffer
Director of Stewardship

cc. Boston Landmarks Commission
Boston Redevelopment Authority
Massachusetts Environmental Policy Act
Massachusetts Historical Commission
Michael J. Connolly, Massachusetts Secretary of State
Peter Steiger

9. BOSTON UNIVERSITY COMMUNITY TASK FORCE

From: Pamela G. Beale, Chair
Date: January 20, 1994

Boston University appreciates the support expressed for the Project.

⑨

Boston University Community Task Force
Pamela G. Beale,Chairperson
510 Commonwealth Ave.
Boston, MA 02215

RECEIVED
JAN 20 1994
MEPA

Secretary Trudy Coxe
Executive Office of Environmental Affairs
Commonwealth of Massachusetts
100 Cambridge Street
Boston, MA 02201

Attn: MEPA Unit

Re: Boston University School of Management

Dear Ms. Coxe:

I am writing in my capacity as Chairperson of the Boston University Community Task Force to inform you of our support for the Draft Environmental Impact Report (DEIR) for the Boston University School of Management proposed for 595 Commonwealth Avenue.

The Task Force met on November 30, 1992 to discuss and vote on the School of Management project. Since then, there have been two meetings one on June 2, 1993 and the other on December 9, 1993. There was no opposition expressed at either of these meetings and no additional votes taken since the vote to approve the project on November 30, 1992.

The University has met with and received approvals and support from city agencies including the Boston Redevelopment Authority, Boston Civic Design, Boston Zoning Commission and Boston Landmark Commission.

Based on our ongoing discussions with the University, the vote to support the project and the meeting held to specifically present the DEIR to the Task Force last December, we support this document and the proposed project outlined in the report.

Sincerely,

Pamela G. Beale

Pamela G. Beale, Chair
Boston University Task Force

10. BAY STATE ROAD NEIGHBORHOOD ASSOCIATION

From: Herbert M. Walsh, Treasurer
Date: January 6, 1994

Boston University appreciates the support expressed for the Project.

The Bay State Road Neighborhood Association
47 Bay State Road
Boston, Massachusetts 02215
(617) 437-0973

JD

⑩

RECEIVED
JAN 19 1994
MEPA

Donald J. Barker
President

Carl G. Sessa
Vice President

Herbert M. Walsh
Treasurer

Wilma Nash
Secretary

Executive Board
Donald J. Barker
Wilma Nash
Alice D. Seale
Carl G. Sessa
Carlos H. Tosi
Herbert M. Walsh

January 6, 1994

Secretary Trudy Coxe
Executive Office of Environmental Affairs
Commonwealth of Massachusetts
100 Cambridge Street
Boston, MA 02202

Attention: MEPA Unit

Regarding: Boston University School of Management

Dear Ms. Coxe:

The members of The Bay State Road Neighborhood Association have read the Draft Environmental Impact Report (DEIR) for the proposed Boston University School of Management project at 595 Commonwealth Avenue in Boston, and strongly support the project.

The members of the Bay State Road Neighborhood Association look forward to the new building leading the way to a much needed revitalization of Kenmore Square. Indeed, the best way to protect and improve the Bay State Road environment is to improve Kenmore Square.

Sincerely,

Herbert M. Walsh
Treasurer

BSRNA

11. KENMORE RESIDENTS GROUP

From: Terri North, President
Date: January 20, 1994

Boston University appreciates the support expressed for the Project.

⑪

Kenmore Residents Group
464 Commonwealth Ave.
Boston, MA 02215

January 18, 1994

Secretary Trudy Coxe
Executive Office of Environmental Affairs
Commonwealth of Massachusetts
100 Cambridge Street
Boston, MA 02201

Attn: MEPA Unit

RECEIVED
JAN 20 1994
MEPA

Re: Boston University School of Management Project

Dear Ms. Coxe:

I am writing on behalf of the Kenmore Residents Group to inform you of our support of the Boston University School of Management building proposed for 595 Commonwealth Avenue. We have attended all community meetings and reviewed the Draft Environmental Impact Report and find no problems with it. The report is complete and we believe it accurately reflects the building reperesented at all meetings.

In closing we would like to urge you to approve this building as it will be a tremendous catalyst for the revitalization of Kenmore Square.

Sincerely,

Terri North
President

12. KENMORE COMMUNITY & ECONOMIC DEVELOPMENT CORPORATION

From: Katie Blenk, Vice President
Date: January 18, 1994

Boston University appreciates the support expressed for the Project.

KENMORE
Community & Economic
Development Corporation
P.O. Box 634, Kenmore Station
Boston, MA 02215
(617) 266-0971

JV

⑫

January 18, 1994

Secretary Trudy Coxe
Executive Office of Environmental Affairs
Commonwealth of Massachusetts
100 Cambridge Street
Boston, MA 02201

RECEIVED
JAN 20 1994
MEPA

Re: Boston University School of Management

Dear Ms. Coxe:

I am writing to inform you of our support for the Boston University School of Management building to be located at 595 Commonwealth Ave. We have reviewed the Draft Environmental Impact Report and have attended all Task Force and community meetings and we believe that this document conforms with the outline detailed in the Master Plan and accurately reflects the project as presented. Accordingly, we would appreciate your supporting the construction of this building.

Sincerely,

Katie Blenk

Katie Blenk
Vice President

13. KENMORE ASSOCIATION, INC.

From: Pamela G. Beale, President
Date: January 14, 1994

Boston University appreciates the support expressed for the Project.

Kenmore Association, Inc.
P.O. Box 644
Kenmore Station
Boston, MA 02215
Telephone 262-6246

⑬

January 14, 1994

Secretary Trudy Coxe
Executive Office if Environmental Affairs
Commonwealth of Massachusetts
100 Cambridge Street
Boston, MA 02201

Re: Boston University School of Management Project

Dear Ms. Coxe:

I am writing on behalf of the Kenmore Association to inform you of our support for the School of Management building proposed for 595 Commonwealth Avenue. Members of the Association have reviewed the Draft Environmental Impact Report and believe it is a comprehensive document that conforms with the outline detailed in the Master Plan. The Master Plan has always been thought of as an outline which identifies possible development sites and is the catalyst for discussion between the community, the City and Boston University.

It is our belief that this report illustrates that the School of Management building will have a positive impact on the Kenmore Square area and we urge you to allow construction to begin.

Thank you for considering our opinion.

Sincerely,
Pamela G. Beale
Pamela G. Beale
President

14. BAY STATE ROAD CIVIC ASSOCIATION

From: Victor Themos, President
Date: January 20, 1994

Comment # and Response

14.1 The Project has been found to be consistent with the Boston University Master Plan. Please see Section 3.2.2, Master Plan Consistency.

14.2 The Project is located on a commercially zoned site and occupies a key parcel on the University campus. The Project has been designed to meet the needs of the University and define the eastern gateway to the campus, enhance the commercial activity on Commonwealth Avenue and Kenmore Square while not creating unnecessary impacts on the adjacent historic neighborhood. The Project conforms to the campus and commercial neighborhood character within which it is located.

14.3 The Project will not harm the historic resources in the area. In addition to the design and size changes already incorporated into the Project, a Building and Groundwater Level Protection Plan will be implemented to protect abutting foundations (see Appendix D and Section 4.7.2, Foundation) and a Memorandum of Agreement (MOA) with the Massachusetts Historical Commission which provides for additional mitigation of potential impacts will be implemented (see Appendix B).

14.4 Boston University will continue to work with the Boston University Task Force and City officials in planning and developing other projects in the area.

14.5 The current Planned Development Area (PDA) does allow for the height associated with the Project. The original B-4 zoning classification did not include height restrictions. The B-4 zoning alternative in this FEIR demonstrates how this might be achieved.

14.6 The height of the Project building includes the mechanical penthouse as defined in the Boston Zoning By-Law.

J.V

⑭

The
Bay State Road Civic
Association
Inc. — 1975

1-20-94

Secretary Trudy Coxe
Executive Office of
Environmental Affairs
100 Cambridge St
Boston Ma 02202

RECEIVED
JAN 24 1994
MEPA

Attn MEPA Unit

Dear Secretary Coxe.

Please be put on notice that the Bay State Rd Community (non University affiliated) of residents and property owners are in total opposition to the BU proposed School of Management at 595 Commonwealth Avenue in Boston Massachusetts.

Why? To be accurate and precise the main reasons are the numerous problems contemplated and not realistically answered to the satisfaction of all concerned.

In particular, the height and density but in particular the height agreed by all as being too high.

A) The height is not consistent with

The
Bay State Road Civic
Association
Inc. — 1975

any proposed project to be built on same
site in compliance with the City/BU Master
Plan signed by the City and the BRA/BU. (14.1)
Please see original site-height specifications
in the Master Plan.

B) Not in conformity to the adjacent neighborh. (14.2)

C) Would do harm to an Historic Landmark
District. Bay State Rd/Back Bay West Landmark Dist. (14.3)

D) Such excessive height would tend to set (14.4)
a precedent for future building - extended to
the surrounding areas, creating a great wall.

E) Area not zoned for such an excessive (14.5)
height project - No exception should be
allowed

F.) Would the mechanics of the building add to
the height of the project? (14.6)

A building of the Master plan height would I
believe be acceptable to be built

Respectfully,

Victor
President

— THE - BROWNSTONES —

To preserve - maintain our area residential - safe. Beautiful and all other matters relating to and for the benefit of our community working together with the City of Boston and the Commonwealth of Massachusetts.

INDIVIDUALS

15. SARA BAKER, BAKER DESIGN

From: Sara Baker, Co-Chair, Kenmore Residents Assoc.
Date: January 4, 1994

Comment # and Response

15.1 The Project will not adversely impact air quality in the Kenmore Square area. Potential sources of air pollution associated with the Project involve vehicular traffic, mechanical systems, and construction activities. Net new vehicle trips associated with the Project will be negligible, as the Project primarily relocates existing University uses in the vicinity and there is excellent access to public transportation and a Boston University campus shuttle bus. Building mechanical systems are vented away from pedestrian areas and/or above the mechanical penthouse. Construction activities are not anticipated to generate significant air emissions. Below is a summary of measures which mitigate any potential impacts associated with the Project.

BUILDING MECHANICAL SYSTEMS

All building mechanical systems meet applicable state and City of Boston air quality standards. The garage exhaust system will have carbon monoxide sensing devices with automatic on/off switches to maintain healthy air quality levels within the garage. Garage exhaust louvers are located in the alley, away from pedestrian activity. Other mechanical systems are vented above the building at least 150 feet above the ground.

CONSTRUCTION

Construction equipment will be maintained in good working order to reduce equipment emissions. All exposed areas will be temporarily stabilized to the extent practicable and environmentally benign wetting agents applied to control fugitive dust. Only licensed haulers using covered trucks will be used. Sweeper trucks will clean Commonwealth Avenue and Sherborn Street regularly, during excavation.

Construction staging for the Project will be located on-site and at 620 Commonwealth Avenue, a previous construction staging area. Displaced parking will be located on campus at other University controlled lots. There is ample public parking in the area for construction workers and excellent public transportation to the Project site. The University will subsidize construction worker MBTA passes to further mitigate potential traffic and parking impacts during construction. Designated truck traffic routes which avoid primarily residential streets will be utilized.

Precautions will be taken to protect public safety through designated walkways, fencing, University security patrols, and police details as necessary. There will be coordination with other construction activities in the area. A Construction Management Plan will be prepared which will include air quality protection measures including:

- Staging for materials and machinery
- Traffic management plan and police coverage
- Designated truck routes and waiting areas
- Pedestrian safety and security
- Dust and air quality controls
- Handling of excavated materials

TRANSPORTATION

As the new School of Management project will replace existing academic facilities on the campus, it will not result in a significant addition of students, faculty, or staff to the campus transportation system. On a daily basis, the Project is expected to generate a total of approximately 228 new vehicle trips in an area already logging in over 32,000 trips per day. Approximately 57 of these trips are expected to occur in each of the morning and evening peak hours. Two signalized intersections in the vicinity of the Project site were analyzed for traffic impacts. The analysis showed that both intersections operate at Level-of-Service (LOS) D or better under existing conditions. In the future, under No-Build conditions, the Kenmore Square intersection is forecast to decline to LOS E from LOS D during the morning peak hour. No decline in LOS or degradation of intersection operations is anticipated as a result of the proposed development.

The parking element of the Project balances the need to protect the adjacent neighborhoods from unwelcome parking burden from the Project and also encourage the use of alternative modes of travel such as public transportation, walking, and bicycling. The additional 89 parking spaces constructed with this Project will accommodate the uses on site, including most of the demand from the Executive Education Center. The Project is not anticipated to create any significant increases in parking demand except those associated with the Executive Education Center activities. On days when average-attendance training seminars are occurring (about 80 participants), it is estimated that up to 40 additional parking spaces would be needed. This additional demand can be accommodated on the site. A few times per year, the Executive Education Center will be used to its full-capacity (240 participants) requiring an estimated 120 parking spaces. On these occasional days, the University will park attendees at the site and at other nearby locations such as the Bay State Road lot, the 700 Commonwealth Avenue garage, and elsewhere, so as to discourage parking in nearby neighborhoods.

The new School of Management project is forecast to generate a total of 750 transit trips per day. Fewer than 100 of these trips will be new to the Charles River campus and, therefore, the impacts on overall transit operations will be negligible.

A Transportation Access Plan Agreement detailing mitigation measures in the following categories will be prepared and implemented:

- *Travel Demand Management*
  This will include initiatives in ridesharing, public transportation promotion, a Transportation Awareness Day, bicycle transportation, variable work hours, a preferential parking program, and transit pass sales.

- *Vehicle Access and Circulation*
  This will include improved signal operations, consolidation of curbcuts to the site, and continued enforcement of traffic and parking regulations.

- *Public Transportation*
  The University will continue its maintenance program for the MBTA's Green Line median strip adjacent to the school, and will continue its support for the circumferential transit line planning.

- *Pedestrian Access and Circulation*
  Strategies in this category include handicapped access, landscape improvements, and pedestrian safety measures.

- *Transportation Coordination*
  The University anticipates continued close cooperation with the City of Boston in promoting traffic and pedestrian safety and efficiency. The University anticipates updating its campus-wide parking master plan in conjunction with the 1996 Campus Master Plan renewal.

- *Construction Traffic Management*
  This element involves preparation of a construction traffic management plan, designated truck routes, designated pedestrian walkways, on-site storage areas for construction materials, truck waiting areas, and police officer traffic management. The University will subsidize construction worker MBTA passes to contribute to traffic and parking mitigation.

- *Monitoring Program*
  The University is committed to arriving at a reasonable set of travel demand reduction goals and will monitor development-generated transportation and parking characteristics.

BAKER DESIGN
boston center for the arts
551 tremont st.
boston, ma 02216
262-7971

RECEIVED
JAN 7 1994
MEPA

Jan 4, 1944

15

Attention: MEPA UNIT

Secr. Trudy Coxe
Exec. Off. of Environ. Affairs
100 Cambridge St, Boston

Dear Ms. Coxe,

Enclosed is a recent report on some toxic effects of air pollution.

As one of many residents living across the street from Boston University's proposed School of Management building (Comm. Ave., Kenmore Square) and opposing the oversized building, I believe that this additional report underlines numerous letters and petitions in opposition to the building on grounds of a potentially toxic increase in air pollution.

We residents already endure the hardship of traffic and congestion in Kenmore Square added to air pollution. We are concerned that BU's building will further exacerbate air pollution problems. 15.1

Yours truly,
Jean Baker
Co Chair, Kenmore Residents Assoc.

ENVIRONMENT

HSPH Study Challenges EPA Clean Air Standards

As anyone who has spent a day in Los Angeles when the smog has descended can attest, air pollution can cause even a healthy person to cough, wheeze and wish for a breath of fresh air.

But now investigators at the Harvard School of Public Health have shown that even exposure to lower levels of air pollution, well below the limits set by Environmental Protection Agency standards, increases the risk of death due to lung cancer and cardiopulmonary disease.

In a study published in the December 9th issue of *The New England Journal of Medicine*, the Harvard researchers reported that in a comparison of six communities, mortality rates were 26 percent higher in the most polluted cities than in the communities with the cleanest air. The lives of people living in the most polluted cities were, on average, shortened by one to two years.

"The message to me is that we can see effects from any increment in pollution," says Douglas Dockery, associate professor of environmental epidemiology and lead author of the study. "Any improvement in air pollution would be translatable into an improvement in public health, as measured by lower mortality rates."

SIX CITIES STUDIED

To do their study, the Harvard investigators tracked the health of 8,111 men and women for a period of up to 16 years, starting in 1974, living in six communities: Watertown, Mass.; Harriman, Tennessee; certain census tracts in St. Louis, Missouri; Steubenville, Ohio; Portage, Wisconsin; and Topeka, Kansas. Steubenville had the dirtiest air, while Portage and Topeka had the cleanest.

The Harvard researchers found a direct association between higher levels of air pollution and a higher number of deaths due to cardiovascular and pulmonary diseases. In drawing their conclusions, they took into account other factors that would affect mortality rates, such as the smoking habits, weight, educational levels and exposure to occupational pollutants of the residents of the six communities. "We controlled for all those variables, and still saw an association," Dockery says.

The federal government, in drawing up clean-air legislation, has drawn the line at counting particles 10 microns or less in diameter. If the 24-hour average concentration of airborne particles under this size exceeds 150 micrograms per cubic meter, or if the annual mean exceeds 50 micrograms per cubic meter, then a city is deemed out of compliance with EPA standards.

However, this study suggests that a much more relevant standard would be to only measure particles less than 2.5 microns in diameter.

DOCKERY *and his team found a direct link between fine-particle air pollution and two deadly diseases.*

The Harvard researchers did so in their study, and found that exposure to such fine-particle air pollutants, which are produced by industrial and automobile emissions, was the one factor most strongly associated with an increased occurance of death due to respiratory disease.

Particles bigger than 2.5 microns are produced mostly by farming, mining, road dust, and mechanical processes, Dockery says. Fine particles come from auto exhaust and industrial processes that burn coal, oil, and natural gas. Such tiny particles contain sulfur, carbon, various metals, and droplets of sulfuric acid. Because of their small size, these toxic substances are able to penetrate past defense mechanisms protecting the sensitive gas exchange areas (alveoli) of the lung, Dockery says.

In all six cities, total air pollution declined from 1975 to 1986, especially in Steubenville and St. Louis. But, unfortunately, concentrations of the more harmful fine particles remained relatively stable.

LEGAL LEVELS LETHAL

This study builds on earlier ones making the case that even fairly low levels of air pollutants are harmful. In 1992, Dockery published a study on air pollution in Philadelphia that showed deaths increase when particles are at levels of only one-third the current legal standard. And a study of Seattle residents found emergency room visits for asthma increase when average pollution levels reach 30 micrograms per cubic meter, or one-fifth the allowable limit under EPA standards.

"Statistical analyses like this one don't reveal the causes of sickness and death, but they point out strong associations," Dockery says. "We now have a good case for the inadequacy of the EPA standards now in effect." F

16. STEPHEN B. CORN

From: Stephen M. Corn, MD.
Date: December 14, 1994

Comment # and Response

16.1 Please see response 15.1 above and response 17.2 of the following letter.

JD

16

STEPHEN B. CORN, M.D.
566 COMMONWEALTH AVENUE, APT. 1009
BOSTON, MASSACHUSETTS 02215

RECEIVED
JAN 12 1994
MEPA

December 14, 1993

Attn: Trudy Coxe
MEPA Unit

Richard Dennis, SR
Chairman, City of Boston Board of Appeals
Boston City Hall, Rm 204
Boston, MA 02201

Dear Mr. Dennis,

I sent to you a letter on November 18, 1993 regarding the potential health risks associated with the proposed Boston University School of Management Building on Commonwealth Avenue. Enclosed are two recent articles from the New England Journal of Medicine that address health hazards associated with urban air pollution. For the health concerns of the individuals who live, work, study, and visit the building area, I hope you review these articles and undertake a health study to address these potentially life-threatening issues. (16.1)

Sincerely,

Stephen B. Corn, M.D.

The New England
Journal of Medicine

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Volume 329 DECEMBER 9, 1993 Number 24

AN ASSOCIATION BETWEEN AIR POLLUTION AND MORTALITY IN SIX U.S. CITIES

Douglas W. Dockery, Sc.D., C. Arden Pope III, Ph.D., Xiping Xu, M.D., Ph.D.,
John D. Spengler, Ph.D., James H. Ware, Ph.D., Martha E. Fay, M.P.H.,
Benjamin G. Ferris, Jr., M.D., and Frank E. Speizer, M.D.

Abstract *Background.* Recent studies have reported associations between particulate air pollution and daily mortality rates. Population-based, cross-sectional studies of metropolitan areas in the United States have also found associations between particulate air pollution and annual mortality rates, but these studies have been criticized, in part because they did not directly control for cigarette smoking and other health risks.

Methods. In this prospective cohort study, we estimated the effects of air pollution on mortality, while controlling for individual risk factors. Survival analysis, including Cox proportional-hazards regression modeling, was conducted with data from a 14-to-16-year mortality follow-up of 8111 adults in six U.S. cities.

Results. Mortality rates were most strongly associated with cigarette smoking. After adjusting for smoking and other risk factors, we observed statistically significant and robust associations between air pollution and mortality. The adjusted mortality-rate ratio for the most polluted of the cities as compared with the least polluted was 1.26 (95 percent confidence interval, 1.08 to 1.47). Air pollution was positively associated with death from lung cancer and cardiopulmonary disease but not with death from other causes considered together. Mortality was most strongly associated with air pollution with fine particulates, including sulfates.

Conclusions. Although the effects of other, unmeasured risk factors cannot be excluded with certainty, these results suggest that fine-particulate air pollution, or a more complex pollution mixture associated with fine particulate matter, contributes to excess mortality in certain U.S. cities. (N Engl J Med 1993;329:1753-9.)

SEVERAL cross-sectional investigations have found associations between mortality rates and particulate air pollution in U.S. metropolitan areas.[1-3] A recent study reported associations between infant mortality and particulate air pollution in the Czech Republic.[4] These studies have often been criticized because they did not control directly for cigarette smoking or other covariates. Recent daily time-series studies, which are likely to be free of confounding by individual characteristics, have reported associations between daily mortality rates and changes in air pollution, specifically particulate pollution, in London[5] and in several cities in the United States.[6-12]

Particulate air pollution is a mixture of solid particles and liquid droplets that vary in size, composition, and origin. Because only very small particles can be inhaled into the lungs, U.S. national health standards for the quality of ambient air are based on the mass concentration of "inhalable particles," defined to include particles with an aerodynamic diameter of less than 10 μm.[13] Fine-particulate air pollution includes particles with an aerodynamic diameter equal to or below 2.5 μm. Whereas larger particles are derived chiefly from soil and other crustal materials, fine particles are derived primarily from the combustion of fossil fuels in transportation, manufacturing, and power generation. Fine-particulate pollution typically contains a mixture of particles including soot, acid condensates, and sulfate and nitrate particles. Fine particles are thought to pose a particularly great risk to health because they are more likely to be toxic than larger particles and can be breathed more deeply into the lungs.[14]

In this study, a well-characterized cohort of adults participating in the Harvard Six Cities Study of the health effects of air pollution was followed prospectively, beginning in 1974.[15] The objective of this study

From the Environmental Epidemiology Program (D.W.D., C.A.P., X.X., M.E.F., B.G.F., F.E.S.), the Exposure Assessment and Engineering Program (J.D.S.), and the Interdisciplinary Program in Health (C.A.P.), Department of Environmental Health, and the Department of Biostatistics (J.H.W.), Harvard School of Public Health, Boston; the Channing Laboratory, Brigham and Women's Hospital and Harvard Medical School, Boston (D.W.D., F.E.S.); and the Economics Department, Brigham Young University, Provo, Utah (C.A.P.). Address reprint requests to Dr. Dockery at the Environmental Epidemiology Program, Department of Environmental Health, Harvard School of Public Health, 665 Huntington Ave., Boston, MA 02115.

Supported in part by grants (ES-01108 and ES-00002) from the National Institute of Environmental Health Sciences, by cooperative agreements (CR-811650 and CR-818090) with the Environmental Protection Agency, and by a contract (RP-1001) with the Electric Power Research Institute.

Presented in part at the annual meeting of the American Thoracic Society, San Francisco, May 19, 1992, and at the Aerosols in Medicine Congress of the International Society for Aerosols in Medicine, Garmisch-Partenkirchen, Germany, April 1, 1993.

was to estimate the effects of air pollution on mortality, with control for individual smoking status, sex, age, and other risk factors.

METHODS

Study Population

We selected random samples of adults from six communities[15]: Watertown, Massachusetts (where study enrollment was conducted in 1974); Harriman, Tennessee, including Kingston (1975); specific census tracts of St. Louis (1975); Steubenville, Ohio (1976); Portage, Wisconsin, including Wyocena and Pardeeville (1976); and Topeka, Kansas (1977). The sample was restricted to the 8111 white subjects who were 25 through 74 years of age at enrollment, had undergone spirometric testing, and had completed a standardized questionnaire. The questionnaire included questions about age, sex, weight, height, education level, complete smoking history, occupational exposures, and medical history.

Informational letters and postage-paid return postcards including a question on vital status were mailed to the subjects annually. The vital status of the subjects who did not respond was determined by questioning family members, friends, or neighbors. In addition, we searched the National Death Index[16] for the years 1979 through 1989. Death certificates were obtained for 1401 of the 1430 subjects who had died (98 percent); the causes of death were coded according to the *International Classification of Diseases, 9th Revision* (ICD-9) by an independent certified nosologist who was blinded both to pollution levels and to the study design and objectives. The ending date of the study for each city was March or June of 1991, depending on the date of the last follow-up contact; the total duration of follow-up was 14 to 16 years (111,076 person-years).

For subjects who died, survival times were calculated by subtracting the date of enrollment from the exact date of death. For surviving participants who were not lost to follow-up, censored survival times were defined as the date of the end of the study minus the enrollment date. For those who were lost to follow-up before the period covered by our National Death Index search (i.e., before 1979), censored survival times were estimated by subtracting the enrollment date either from the date of the last follow-up contact plus six months or from the first day of the National Death Index search period (January 1, 1979), whichever came first. For those who were lost to follow-up after the National Death Index search period (i.e., after 1989), censored survival times were estimated by subtracting the enrollment date either from the date of the last follow-up contact plus six months or from the last day of the study period, whichever came first. For those who were lost to follow-up during the period covered by the National Death Index search, the censored survival times were estimated by subtracting the date of enrollment from the last date in the search period (December 31, 1989).

Air-Pollution Data

As part of the original study design, ambient (outdoor) concentrations of total suspended particulate matter, sulfur dioxide, ozone, and suspended sulfates were measured in each community at a centrally located air-monitoring station.[15] Size-selective aerosol samplers were placed at these sites in the late 1970s; data were collected for two classes of particle: fine particles (aerodynamic diameter <2.5 μm) and inhalable particles (aerodynamic diameter, <15 μm before 1984 and <10 μm starting in 1984). In the mid-1980s, supplemental 24-hour integrated sampling of aerosol acidity by the measurement of hydrogen ion concentrations[17] was conducted for approximately one year in each city. Mean pollution levels for each pollutant were calculated for periods that were consistent and comparable among the six cities.

Statistical Analysis

Life-table survival probabilities for each year of follow-up were estimated for each city, and differences between city-specific mortality rates were assessed with a log-rank test.[18] We estimated adjusted mortality-rate ratios for air pollution by simultaneously adjusting for other risk factors in Cox proportional-hazards regression models.[18-22] In these models the subjects were stratified according to sex and five-year age groups, and each sex–age group had its own base-line hazard. Each model also included indicator variables for current or former smokers, the number of pack-years of smoking (evaluated separately for current and former smokers), an indicator variable for less than a high-school education, and body-mass index (defined as the weight in kilograms divided by the square of the height in meters).

Two approaches were used to evaluate the effects of air pollution in the Cox proportional-hazards models. First, indicator variables for the city of residence were included, with Portage, Wisconsin, the city with the lowest levels of particulate air pollution, as the reference category. Adjusted mortality-rate ratios for each of the six cities were then compared graphically with the mean pollution levels in those cities. Next, adjusted mortality-rate ratios were estimated by including city-specific pollution levels directly in the Cox proportional-hazards models. Adjusted rate ratios were calculated and reported for a difference in air pollution equal to that between the city with the highest levels of air pollution and the city with the lowest levels — that is, the adjusted rate ratios across the range of exposure for each pollutant among the six cities.

Analyses were conducted to evaluate the robustness of the models and the possibility of residual confounding. Models were estimated after the data were separated according to the subjects' smoking status, sex, and occupational exposure to dust, gases, or fumes. The effect of the inclusion of different covariates on the estimated effect of pollution was evaluated. Models were also estimated after the exclusion of subjects who had been treated for high blood pressure within 10 years of enrollment in the study and subjects who had ever been told by a doctor that they had diabetes, had glucose in their urine, or had too much glucose in their blood. We also used a variety of approaches to estimate censored survival times.

Mortality-rate ratios from the Cox proportional-hazards models (with adjustment for cigarette smoking, education, and body-mass index) were estimated separately for the following cause-of-death categories: cardiopulmonary (ICD-9 codes 400 through 440 and 485 through 496), lung cancer (162), and all others. For each cause-of-death category, data on subjects whose deaths were not in that specific category were censored at the time of death.

RESULTS

Characteristics of the Cohort and Air-Pollution Data

The characteristics of the cohort and the values for air-pollution measures are summarized in Table 1. For all measures of air pollution except the ozone level and aerosol acidity, ambient concentrations were highest in Steubenville and lowest in Portage or Topeka. The mean acidity of the aerosol was highest in Harriman, but second-highest in Steubenville. The mean ozone concentrations were highest in Portage and Topeka. The concentrations of total particles declined during the study period, especially in Steubenville and St. Louis; the annual average concentrations of fine and sulfate particles varied relatively little during the study period (Fig. 1). Crude mortality rates (Table 1) and survival curves (Fig. 2) both show that mortality was highest in Steubenville and St. Louis and lowest in Portage and Topeka. Differences in the probability of survival among the cities were statistically significant ($P<0.001$).

Adjusted Mortality Rates

On the basis of the proportional-hazards model, mortality was most strongly associated with cigarette smoking (Table 2). Increased mortality was also associated with having less than a high-school educa-

Table 1. Characteristics of the Study Population and Mean Air-Pollution Levels in Six Cities.*

CHARACTERISTIC	PORTAGE, WIS.	TOPEKA, KANS.	WATERTOWN, MASS.	HARRIMAN, TENN.	ST. LOUIS	STEUBENVILLE, OHIO
No. of participants	1,631	1,239	1,336	1,258	1,296	1,351
Person-years of follow-up	21,618	16,111	19,882	17,836	17,715	17,914
No. of deaths	232	156	248	222	281	291
Deaths/1000 person-years	10.73	9.68	12.47	12.45	15.86	16.24
Female sex (%)	52	56	56	54	55	56
Smokers (%)	36	33	40	37	35	35
Former smokers (%)	24	25	25	21	24	23
Average pack-years of smoking						
Current smokers	24.0	25.6	25.2	24.5	30.9	28.0
Former smokers	18.0	19.7	21.8	21.1	22.0	25.0
Less than high-school education (%)	25	12	22	35	45	30
Average age (yr)	48.4	48.3	48.5	49.4	51.8	51.6
Average body-mass index	26.3	25.3	25.5	25.1	26.0	26.4
Job exposure to dust or fumes (%)	53	28	38	50	40	48
Total particles ($\mu g/m^3$)	34.1	56.6	49.2	49.4	72.5	89.9
Inhalable particles ($\mu g/m^3$)	18.2	26.4	24.2	32.5	31.4	46.5
Fine particles ($\mu g/m^3$)	11.0	12.5	14.9	20.8	19.0	29.6
Sulfate particles ($\mu g/m^3$)	5.3	4.8	6.5	8.1	8.1	12.8
Aerosol acidity ($nmol/m^3$)	10.5	11.6	20.3	36.1	10.3	25.2
Sulfur dioxide (ppb)	4.2	1.6	9.3	4.8	14.1	24.0
Nitrogen dioxide (ppb)	6.1	10.6	18.1	14.1	19.7	21.9
Ozone (ppb)	28.0	27.6	19.7	20.7	20.9	22.3

*Air-pollution values were measured in the following years: total particles, sulfur dioxide, nitrogen dioxide, and ozone, 1977 through 1985; inhalable and fine particles, 1979 through 1985; sulfate particles, 1979 through 1984; and aerosol acidity, 1985 through 1988.

tion and with increased body-mass index (the latter was especially true for women). After simultaneous adjustment for these other risk factors, the differences in mortality among the six cities remained significant.

City-specific mortality rates, adjusted for a variety of health risk factors, were associated with the average levels of air pollutants in the cities (Fig. 3). The small differences in ozone levels among the cities (Table 1) limited the power of the study to detect associations between mortality and ozone levels. Mortality was more strongly associated with the levels of inhalable, fine, and sulfate particles than with the levels of total suspended particles, the sulfur dioxide levels, the nitrogen dioxide levels, or the acidity of the aerosol.

When the mean concentrations of each pollutant were included individually in the proportional-hazards model, we found significant associations between mortality and inhalable, fine, or sulfate particles ($P<0.005$). For a difference in the air-pollution level equal to that between the most polluted city and the least polluted city and with inhalable particles (range, 18.2 to 46.5 μg per cubic meter), fine particles (range, 11.0 to 29.6 μg per cubic meter), and sulfate particles (range, 4.8 to 12.8 μg per cubic meter) used as indicators of air pollution, the adjusted rate ratios were nearly equal at 1.27 (95 percent confidence interval, 1.08 to 1.48), 1.26 (95 percent confidence interval, 1.08 to 1.47), and 1.26 (95 percent confidence interval, 1.08 to 1.47), respectively.

Sensitivity

Estimates of the association between mortality and fine-particle pollution among subjects with different smoking status and among men and women (Table 3) showed only small and nonsignificant differences between subgroups. Associations with air pollution were somewhat stronger among subjects with occupational exposure to dust, gases, or fumes (Table 3). However, positive associations between mortality and air-pollution levels were observed in all subgroups defined by occupational exposure and sex, and differences among the subgroups were not statistically significant.

Although cigarette smoking and other risk factors were associated with mortality, our estimates of pollution-related mortality were not significantly affected by the inclusion or exclusion of these variables in the models (Table 4). The estimated association of air pollution and mortality was unchanged when subjects who had been treated for high blood pressure or subjects with diabetes were excluded from the analysis (Table 4). When censored survival times were recalculated as the date of the last follow-up contact minus the enrollment date, or when the analysis was restricted to data on deaths in 1979 through 1989 (the years of the National Death Index searches), no appreciable differences in the estimated association between air pollution and mortality were observed.

Causes of Death

The estimated effects of air pollution on mortality varied among causes of death (Table 5). For comparison, rate ratios were estimated for current smokers and for former smokers with approximately the average number of pack-years of smoking at enrollment (Table 5). Smoking was most strongly associated with mortality due to lung cancer, significantly associated with mortality due to cardiopulmonary disease, but not associated with mortality from all other causes. Similarly, air pollution was positively associated with mortality due to lung cancer and cardiopulmonary disease but not with mortality from all other causes. Only 98 deaths were coded on the death certificates as due to nonmalignant respiratory disease (ICD-9 codes 485 through 496), as compared with 646 deaths due to cardiovascular disease (codes 400 through 440). An analysis restricted to deaths from nonmalignant respiratory disease produced unstable and statistically nonsignificant estimates of the association with air pollution. When mortality from all causes was considered, or when deaths due to cardiovascular and respiratory diseases were grouped together, the effects of air pollution were consistent and the association was robust.

Discussion

In this prospective cohort study, the mortality rate, adjusted for other health risk factors, was associated with the level of air pollution. Mortality was more strongly associated with the levels of fine, inhalable, and sulfate particles than with the levels of total particulate pollution, aerosol acidity, sulfur dioxide, or nitrogen dioxide. As with all other epidemiologic studies, it is possible that the observed association was due to confounding — that is, that it resulted from a risk factor that was correlated with both exposure and mortality. Potential confounders of the effects of air pollution include cigarette smoking and occupational exposure to pollutants. In our study, however, the association of air pollution with mortality was observed even after we directly controlled for individual differences in other risk factors, including age, sex, cigarette smoking, education level, body-mass index, and occupational exposure.

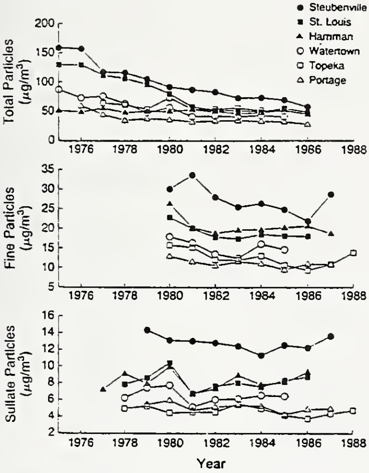

Figure 1. Annual Average Concentrations of Total Particles, Fine Particles, and Sulfate Particles in the Six Cities.

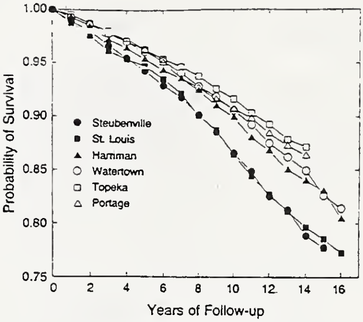

Figure 2. Crude Probability of Survival in the Six Cities, According to Years of Follow-up.

The estimated effect of air pollution on mortality was not altered by the inclusion or exclusion of indicator variables for other risk factors in our models. Analyses were conducted for subgroups defined according to sex, smoking status, and occupational exposure. Although the effects of pollution were somewhat stronger among subjects occupationally exposed to dust, gases, or fumes, positive associations between mortality and air pollution were observed among all the smoking-status, occupational-exposure, and sex groups, and the differences among these subgroups were not statistically significant. The estimated association of pollution and mortality remained essentially unchanged when subjects who had been treated for high blood pressure or who had diabetes were excluded from the analysis.

In our analysis, the mortality-rate ratios have been expressed in terms of the range of exposure to air pollutants in the six cities. When the range of expo-

Table 2. Adjusted Mortality-Rate Ratios Estimated from Cox Proportional-Hazards Models.*

VARIABLE	ALL SUBJECTS	MEN	WOMEN
		rate ratio (95% CI)	
Current smoker	1.59 (1.31–1.92)	1.75 (1.32–2.32)	1.54 (1.16–2.04)
25 Pack-years of smoking	1.26 (1.16–1.38)	1.25 (1.12–1.39)	1.18 (1.00–1.41)
Former smoker	1.20 (1.01–1.43)	1.17 (0.93–1.48)	1.34 (1.02–1.77)
10 Pack-years of smoking	1.15 (1.08–1.23)	1.16 (1.09–1.25)	1.15 (0.97–1.36)
Less than high-school education	1.19 (1.06–1.33)	1.22 (1.06–1.41)	1.13 (0.95–1.35)
Body-mass index	1.08 (1.02–1.14)	1.03 (0.95–1.12)	1.11 (1.03–1.20)
City			
Portage, Wis.†	1.00 (—)	1.00 (—)	1.00 (—)
Topeka, Kans.	1.01 (0.82–1.24)	1.04 (0.79–1.36)	0.97 (0.71–1.34)
Harriman, Tenn.	1.17 (0.97–1.41)	1.21 (0.96–1.54)	1.07 (0.79–1.45)
Watertown, Mass.	1.07 (0.89–1.28)	0.94 (0.73–1.20)	1.22 (0.93–1.61)
St. Louis	1.14 (0.96–1.36)	1.15 (0.91–1.44)	1.13 (0.86–1.50)
Steubenville, Ohio	1.26 (1.06–1.50)	1.29 (1.03–1.62)	1.23 (0.93–1.61)

*Rates have been adjusted for age, sex, and all other variables listed in the table. The rate ratios for body-mass index are for an increase of 4.52 (1 SD). CI denotes confidence interval.

†City-specific rate ratios are all expressed in relation to Portage.

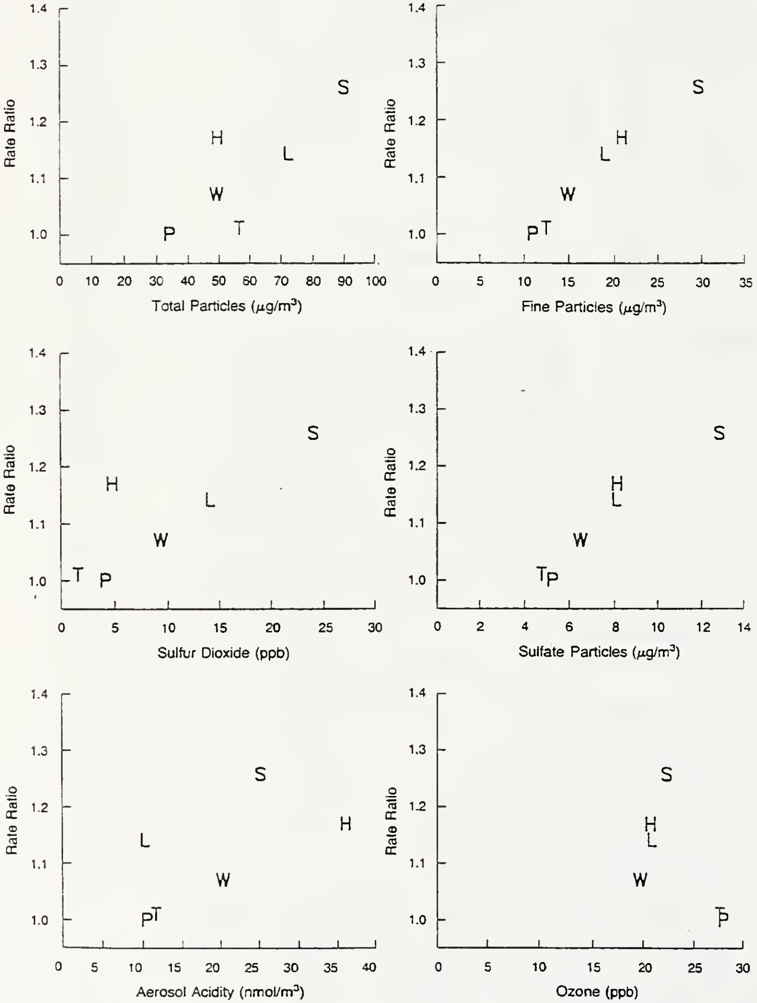

Figure 3. Estimated Adjusted Mortality-Rate Ratios and Pollution Levels in the Six Cities.

Mean values are shown for the measures of air pollution. P denotes Portage, Wisconsin; T Topeka, Kansas; W Watertown, Massachusetts; L St. Louis; H Harriman, Tennessee; and S Steubenville, Ohio.

Table 3. Adjusted Mortality-Rate Ratios for the Most Polluted and Least Polluted Cities Studied, According to Smoking Status, Sex, and Occupational Exposure, with Fine Particles Used as the Indicator of Air Pollution.*

Group of Subjects	No. of Subjects	No. of Deaths	Rate Ratio (95% CI)†
All	8096	1429	1.26 (1.08–1.47)
Nonsmokers	3266	431	1.19 (0.90–1.57)
Women	2280	292	1.15 (0.82–1.62)
Men	986	139	1.29 (0.80–2.09)
Former smokers	1934	432	1.35 (1.02–1.77)
Women	670	106	1.48 (0.82–2.66)
Men	1264	326	1.31 (0.96–1.80)
Current smokers	2896	566	1.32 (1.04–1.68)
Women	1478	201	1.23 (0.83–1.83)
Men	1418	365	1.42 (1.05–1.92)
No occupational exposure‡	4455	686	1.17 (0.93–1.47)
Women	3151	417	1.13 (0.85–1.50)
Men	1304	269	1.27 (0.85–1.92)
Occupational exposure‡	3641	743	1.35 (1.10–1.65)
Women	1277	182	1.32 (0.86–1.50)
Men	2364	561	1.35 (1.07–1.69)

*The city with the highest level of fine-particulate air pollution was Steubenville, Ohio, and that with the lowest was Portage, Wisconsin. Rates have been adjusted for age, sex, smoking, education, and body-mass index. Fifteen subjects were excluded because of missing data on weight.

†CI denotes confidence interval.

‡To gases, fumes, or dust.

Table 4. Estimated Mortality-Rate Ratios for the Most Polluted City as Compared with the Least Polluted City, with Fine Particles Used as the Indicator of Air Pollution, in Selected Models.*

Model No.	Variables Included†	Rate Ratio (95% CI)‡
1	Fine particles	1.31 (1.13–1.52)
2	Model 1 + all smoking variables	1.29 (1.11–1.49)
3	Model 2 + high-school education	1.26 (1.08–1.47)
4	Model 3 + body-mass index	1.26 (1.08–1.47)
5	Model 4 + occupational exposure	1.26 (1.08–1.46)
6	Model 5, excluding 1439 subjects with hypertension	1.25 (1.04–1.50)
7	Model 5, excluding 561 subjects with diabetes	1.29 (1.09–1.52)

*The city with the highest level of fine-particulate air pollution was Steubenville, Ohio, and that with the lowest was Portage, Wisconsin. In addition to the variables specified, rates have been adjusted for age and sex.

†Subjects with hypertension were those who had been treated for high blood pressure within 10 years before enrollment; subjects with diabetes were those who had ever been told by a doctor that they had diabetes, had glucose in their urine, or had too much glucose in their blood.

‡CI denotes confidence interval.

sure was used, the estimated relative rate ratios for inhalable, fine, and sulfate particles were nearly equal at 1.27 (95 percent confidence interval, 1.08 to 1.48), 1.26 (95 percent confidence interval, 1.08 to 1.47), and 1.26 (95 percent confidence interval, 1.08 to 1.47), respectively. Because the six cities were selected as representative of the range of particulate air pollution in the United States, these rate ratios roughly represent the relative risk associated with that range.

In this study, exposure to air pollution was estimated by monitoring outdoor air pollution at a central site in each of the six cities. Long-term transport and large-scale mixing of combustion products play a large part in establishing the levels of sulfate and fine-particulate air pollution. Therefore, concentrations of sulfates and fine particles are relatively uniform within each of these communities.[23] Furthermore, sulfate and fine-particulate air pollution penetrates indoors, resulting in strong correlations between indoor and outdoor concentrations.[24–26] Thus, measurements of the outdoor concentrations of sulfate and fine particles may be better indicators of individual exposure than the other pollutants we considered.

The associations observed in this study between air pollution and mortality are consistent with associations observed in recent time-series studies, including studies from three of these six cities.[5–12] Because the daily time-series studies evaluated only the effect of short-term changes in pollution levels, whereas our study evaluated associations with long-term exposure (including recurring episodes of relatively high pollution), quantitative comparisons with these investigations are difficult to make. Nevertheless, as was found in the time-series studies, particulate air pollution was associated with death due to cardiopulmonary causes. In our study, in which we evaluated the effects of long-term exposure, lung cancer was associated with particulate air pollution; such an association with lung cancer was not observed in the daily time-series studies. Little or no association with other causes of death was evident in our study or the time-series studies. The small number of reported deaths due to nonmalignant respiratory disease and the potential for misclassification of primary causes inherent in the use of death-certificate data limited our ability to evaluate cause-specific mortality in more detail.

The pollution concentrations used in our analysis represent only exposures monitored during the study period. Increased mortality, however, may reflect the cumulative burden of a lifetime of exposure. Concentrations of total particles clearly declined during the study period (especially in Steubenville and St. Louis), whereas concentrations of fine particles and sulfate particles were relatively stable. Given the lack of data on pollution levels before the study period and in view of the fact that the relative

Table 5. Adjusted Mortality-Rate Ratios for Current and Former Cigarette Smokers and for the Most Polluted City as Compared with the Least Polluted, According to Cause of Death.*

Cause of Death	Percentage of Total	Current Smokers†	Former Smokers‡	Most vs. Least Polluted City
			rate ratio (95% CI)	
All	100	2.00 (1.51–2.65)	1.39 (1.10–1.75)	1.26 (1.08–1.47)
Lung cancer	8.4	8.00 (2.97–21.6)	2.54 (0.90–7.18)	1.37 (0.81–2.31)
Cardiopulmonary disease	53.1	2.30 (1.56–3.41)	1.52 (1.10–2.10)	1.37 (1.11–1.68)
All others	38.5	1.46 (0.89–2.39)	1.17 (0.80–1.73)	1.01 (0.79–1.30)

*The city with the highest level of air pollution (indicated by the level of fine particles) was Steubenville, Ohio, and that with the lowest was Portage, Wisconsin. CI denotes confidence interval. Rates have been adjusted for age, sex, smoking, education, and body-mass index.

†The risk of death for a current smoker with approximately the average number of pack-years of smoking at enrollment (25 pack-years), as compared with that for a nonsmoker.

‡The risk of death for a former smoker with approximately the average number of pack-years of smoking at enrollment (20 pack-years), as compared with that for a nonsmoker.

ranking of the cities in terms of air-pollution levels did not change during the study period, it is not possible to differentiate the influences of historical exposure from those of recent exposure. The observed association between mortality and mean exposure to fine-particulate and sulfate air pollution during the study period may also partially reflect exposure to air pollution before the study period.

The strength of the observed association between air pollution and mortality is confirmed by previous observations of associations between particulate air pollution and other health end points. Elevated levels of particulate air pollution have been associated with declines in lung function or with increases in respiratory symptoms such as cough, shortness of breath, wheezing, and asthma attacks.[27-36] Other studies have found associations between particulate air pollution and rates of hospitalization,[37-41] chronic obstructive pulmonary disease,[42] and restricted activity due to illness.[43,44]

A large and growing body of literature documents the adverse health effects associated with particulate air pollution. Although the effects of unmeasured risk factors cannot be controlled for, in this prospective cohort study we observed significant effects of air pollution on mortality even when we controlled for sex, age, smoking status, education level, and occupational exposure to dust, gases, and fumes. The compatibility of the effects of air pollution on mortality in this study with those observed in population-based cross-sectional studies and daily time-series studies provides further evidence for the conclusion that exposure to air pollution contributes to excess mortality. This study, therefore, provides additional impetus to the development of strategies to reduce urban air pollution.

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STEPHEN B. CORN, M.D.
565 COMMONWEALTH AVENUE, APT. 1009
BOSTON, MASSACHUSETTS 02215

November 18, 1993

Richard Dennis, Sr.
Chairman, City of Boston Board of Appeals
Boston City Hall, Rm 204
Boston, MA 02201

Dear Mr. Dennis,

I am writing to you to address some environmental concerns with regard to the Boston University School of Management's proposed building on Commonwealth Avenue.

Currently, the Kenmore Square "air" has significant levels of carbon monoxide, NOx products, and suspended particles. Before further development occurs, the health issues associated with any building plan must be addressed. Briefly, the areas of concern are pollution effects from automobile fumes and pollution effects from automobile fumes associated with other development, i.e., underground parking which will increase the concentration of air pollutants. These include:

carbon monoxide
NOx
unbound hydrocarbons
suspended particles

Carbon monoxide is a gas produced by the incomplete combustion of carbonaceous particles from automobiles. It is the leading cause of death due to acute poisonings and it is estimated that between 1800 to 3500 deaths per year are due to carbon monoxide poisoning.

There are also chronic effects from low levels of carbon monoxide, which include headache, fatigue, and nausea. It interferes with the blood's oxygen carrying capacity, delivery, and utilization.

A particularly distressing aspect of carbon monoxide exposure is that the toxic effects are dramatic for the pregnant individual and that the developing fetus is even more vulnerable than the mother to the hypoxic effects of carbon monoxide (1).

Additionally, the elderly and individuals with underlying cardiovascular disease are at high risk from exposure to carbon monoxide. There are numerous reports in the literature of coronary ischemia in individuals exposed to environmental carbon monoxide pollution.

Another associated issue to be considered with this proposed building is the "canyon effect" which is caused by decreased fresh air flow, due to a street being lined with tall buildings. This "canyon effect" would greatly increase the level of existing pollution.

When an institution, business, or individual discusses "upgrading the Square" or "the quality of life in the Kenmore Square area" it means more than simply adding another building and more business. The health aspects must also be considered-- aspects that truly determine the quality of life for the individuals who live, work, and visit the area. As you must know, public health concerns have become very sensitive issues. I, several civic groups, and the media await a response to these health issues.

If you have any questions please call me at 617 247 4144.

Sincerely,

Stephen B. Corn, M.D.

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Environment

HSPH Study Challenges EPA Clean Air Standards

As anyone who has spent a day in Los Angeles when the smog has descended can attest, air pollution can cause even a healthy person to cough, wheeze and wish for a breath of fresh air.

But now investigators at the Harvard School of Public Health have shown that even exposure to lower levels of air pollution, well below the limits set by Environmental Protection Agency standards, increases the risk of death due to lung cancer and cardiopulmonary disease.

In a study published in the December 9th issue of *The New England Journal of Medicine*, the Harvard researchers reported that in a comparison of six communities, mortality rates were 26 percent higher in the most polluted cities than in the communities with the cleanest air. The lives of people living in the most polluted cities were, on average, shortened by one to two years.

"The message to me is that we can see effects from any increment in pollution," says Douglas Dockery, associate professor of environmental epidemiology and lead author of the study. "Any improvement in air pollution would be translatable into an improvement in public health, as measured by lower mortality rates."

SIX CITIES STUDIED

To do their study, the Harvard investigators tracked the health of 8,111 men and women for a period of up to 16 years, starting in 1974, living in six communities: Watertown, Mass.; Harriman, Tennessee; certain census tracts in St. Louis, Missouri; Steubenville, Ohio; Portage, Wisconsin; and Topeka, Kansas. Steubenville had the dirtiest air, while Portage and Topeka had the cleanest.

The Harvard researchers found a direct association between higher levels of air pollution and a higher number of deaths due to cardiovascular and pulmonary diseases. In drawing their conclusions, they took into account other factors that would affect mortality rates, such as the smoking habits, weight, educational levels and exposure to occupational pollutants of the residents of the six communities. "We controlled for all those variables, and still saw an association," Dockery says.

Dockery *and his team found a direct link between fine-particle air pollution and two deadly diseases.*

The federal government, in drawing up clean-air legislation, has drawn the line at counting particles 10 microns or less in diameter. If the 24-hour average concentration of airborne particles under this size exceeds 150 micrograms per cubic meter, or if the annual mean exceeds 50 micrograms per cubic meter, then a city is deemed out of compliance with EPA standards.

However, this study suggests that a much more relevant standard would be to only measure particles less than 2.5 microns in diameter. The Harvard researchers did so in their study, and found that exposure to such fine-particle air pollutants, which are produced by industrial and automobile emissions, was the one factor most strongly associated with an increased occurance of death due to respiratory disease.

Particles bigger than 2.5 microns are produced mostly by farming, mining, road dust, and mechanical processes, Dockery says. Fine particles come from auto exhaust and industrial processes that burn coal, oil, and natural gas. Such tiny particles contain sulfur, carbon, various metals, and droplets of sulfuric acid. Because of their small size, these toxic substances are able to penetrate past defense mechanisms protecting the sensitive gas exchange areas (alveoli) of the lung, Dockery says.

In all six cities, total air pollution declined from 1975 to 1986, especially in Steubenville and St. Louis. But, unfortunately, concentrations of the more harmful fine particles remained relatively stable.

LEGAL LEVELS LETHAL

This study builds on earlier ones making the case that even fairly low levels of air pollutants are harmful. In 1992, Dockery published a study on air pollution in Philadelphia that showed deaths increase when particles are at levels of only one-third the current legal standard. And a study of Seattle residents found emergency room visits for asthma increase when average pollution levels reach 30 micrograms per cubic meter, or one-fifth the allowable limit under EPA standards.

"Statistical analyses like this one don't reveal the causes of sickness and death, but they point out strong associations," Dockery says. "We now have a good case for the inadequacy of the EPA standards now in effect." ■

17. EUGENE L. HOLT, BIVONA & COHEN, P.C.

From: Eugene L. Holt, Ph.D., Esq.
Date: January 13, 1994

Comment # and Response

17.1 Please see 15.1 above.

17.2 The Project site currently accommodates 181 parked vehicles. The Project will only add 89 spaces to these existing spaces. Furthermore, this increase does not represent new traffic to Boston University except those trips associated with the Executive Education Center which account for less than 4% of total person trips on the site (not all of these are automobile trips). Therefore, Kenmore Square, Commonwealth Avenue , and other major routes will have to handle only a very small number of new vehicle trips resulting in little or no impact on traffic operations. A trip distribution analysis for the Project indicated that only 23 to 36 peak-hour new vehicle trips will be added to the existing 4,000 peak-hour trips through Kenmore Square.

The buildings in this area reflect varied heights and setbacks along Commonwealth Avenue, a generously sized boulevard, over 150 feet wide. This variation reduces the potential for the "canyon" effect. The Project building will not significantly alter this varied building pattern. Also see response 15.1 above.

17.3 Please see Section 6.5, Mitigation. This section discusses measures for hazardous materials.

17.4 The building will have a waterproof permanent wall which will not allow leakage into the building. Furthermore, the removal of contaminated material during construction removes the source of potential problems. Please see Sections 4.7.2, Foundation, and 6.4 and 6.5.

17

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JASON T KATZ

January 13, 1994

VIA FACSIMILE & MAIL

RECEIVED
JAN 20 1994
MEPA

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202
Attn: MEPA Unit

Dear Ms. Coxe:

I am writing to you as a concerned unit owner of Kenmore Towers, which as you know is directly across Commonwealth Avenue from the proposed site of the new Boston University School of Management building. There exist a number of serious environmental and traffic problems in connection with this proposal to which sufficient attention has not been paid. Therefore I believe it would be a serious mistake to proceed with this project until and unless these problems are ameliorated.

One such problem is air pollution. As you must know, the Kenmore Square area is already the scene of serious carbon monoxide, hydrocarbon, nitrogen oxide and particulate matter pollution. To subject the residents of the area to the inevitable increase in such vehicular emissions is unconscionable. In particular, you may be aware of the problem of benzene contamination in areas of high vehicular traffic. Benzene, a human carcinogen, is emitted from vehicles both from the tailpipe and via evaporation. In fact, it has been determined that vehicles are the major source of benzene at street level. Furthermore, the provision of a three hundred car garage means that these cars, upon arrival, will be emitting evaporative emissions of benzene and other hydrocarbons throughout the day, and especially while their engines and fuel systems are still warm. 17.1

(17.2) The effect of vehicular emissions will also be exacerbated by two other factors. First, the "canyon effect" to be created by a nine story structure will help confine the emissions. Secondly, the traffic congestion already existing in the Kenmore Square area will cause the additional three hundred cars to idle in traffic, further increasing their emissions, as well as those of the usual cars who will be further slowed in their progress through the area.

Although the building planners say these cars do not represent a net increase, since their occupants already work at the University, they overlook the fact that, rather than being scattered through various locations, as is the present case, they will be concentrated at Kenmore Square, which is already congested.

The question of water pollution has been almost totally ignored. The site formerly contained a gasoline station. Although some sort of cleanup was reportedly conducted in 1986-87, when the station was closed and its underground storage tanks removed, such remediation was far from complete. For one thing, cleanup standards at that time were far less stringent than those of today under Chapter 21E. Reportedly contaminated soil was removed and free product skimmed from the water table. However, it is obvious from the present condition of the site that much contamination remains. Thus contaminated soil, a "heavy sheen" on the water table, and dissolved hydrocarbons in the groundwater, especially benzene, were found on site. Furthermore, it has been reported that contamination has been found on the property to the north, in the direction of the nearby Charles River.

(17.3) This remaining contamination raises several serious questions. Even if, as promised, additional contaminated soil is removed during site construction, the water contamination problem remains. Even though the construction pit will be dewatered during site excavation, this will only remove a very small part of the total plume of free and dissolved hydrocarbons. In particular it will do nothing to arrest the northward migration of the plume which has already contaminated neighboring property and, for all we know, may already have reached and be contaminating the river. Construction of the building will forever foreclose any opportunity to remediate this plume at its source. At a minimum, construction should be delayed until the entire plume is delineated and a plan developed for remediation.

(17.4) In addition, the continued presence of groundwater contamination under the building may present a threat to the health of building occupants. The recent site assessment reported "strong odors of hydrocarbons" from the site borings and wells, in addition to the aforementioned sheens. Failure to remediate the groundwater means that such hydrocarbon vapors may permeate the building, creating a health and an esthetic problem.

In summary, because of the issues described in this letter, it would be irresponsible for construction to proceed without further study of the problems and means for their resolution.

Thank you for your attention to this matter.

Very truly yours,

Eugene L. Holt

Eugene L. Holt, Ph.D, Esq.

ELH/rt

cc: Richard Dennis, Sr.
Chairman
City of Boston Board of Appeals
Boston City Hall
Room 204
Boston, MA 02201

18. PETAH STEIGER

From: Petah Steiger, Esq.
Date: January 20, 1994

Comment # and Response

18.1 On January 13, 1994, Boston University representatives including geotechnical and environmental consultants met with Mr. Steiger and other Bay State Road residents and their geotechnical consultant. The geotechnical consultant representing these concerned resident indicated that the geotechnical design for both construction and the permanent structure would provide adequate geotechnical protection. Please see the monitoring program in Section 4.7.2, Foundation.

18.2 Please see the monitoring program in Section 4.7.2, Foundation.

18.3 Please see Section 4.7.2, Foundation.

18.4 Please see the monitoring program in Section 4.7.2, Foundation.

18.5 Please see the monitoring program in Section 4.7.2, Foundation.

18.6 Please see the monitoring program in Section 4.7.2, Foundation.

18.7 Interlocking steel sheeting will not be used as the excavation support wall. Please see the monitoring program in Section 4.7.2, Foundation.

18.8 Please see the monitoring program in Section 4.7.2, Foundation.

18.9 Please see Section 4.7.1, Existing Conditions.

18.10 Chapter 4.0, Historical Resources provides a number of visual analyses which depict the impacts on historical resources in the area.

18.11 Please see response 18.10 above.

18.12 Please see response 18.10 above.

18.13 Please see response 18.10 above.

18.14 Please see response 18.10 above.

January 20, 1994 ⑱

RECEIVED
JAN 24 1994
MEPA

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Dear Ms. Coxe:

For almost thirty years, I have been a resident of an important local historic district, namely the Bay State Road/Back Bay West Architectural Conservation District. For forty-six years, my family has owned a nineteenth-century building in the section of Bay State Road between Sherborn and Deerfield Streets.

My comments addressing the portions of the Draft Environmental Impact Report entitled "Draft Groundwater Protection Plan" and "Section 4.7-Groundwater Level" are motivated by my sincere concern that the excavation required to construct the proposed Boston University School of Management and Administration Building will affect groundwater levels and subterranean water flow thus endangering the foundations (wooden pilings) of the historic nineteenth and twentieth-century buildings along Bay State Road.

The following represent my comments regarding the Environmental Impact Report's Draft Groundwater Protection Plan and Section 4.7-Groundwater Level:

1. The Groundwater Protection Plan ("GPP") states that "the temporary earth support has been selected in order to reduce groundwater seepage into the excavation." It does not state that the temporary earth support will eliminate groundwater seepage into the excavation. (18.1)

2. Section II of the GPP fails to specify where the below-grade geotechnical monitoring instruments will be located. (18.2)

3. Section 4.7 does not indicate how deeply the interlocking steel sheeting will be driven into the earth to prevent vertical seepage from below. (18.3)

4. Section 4.7 provides that "if monitoring indicates that the groundwater levels are lowered significantly as a result of the construction, remedial measures will be implemented." It does not define what qualifies as a significant lowering of groundwater levels. (18.4)

5. The GPP does not indicate whether or not the monitoring of groundwater levels prior to construction activities will take place over several months to mitigate the possibility that precipitation/seasonal changes in weather (18.5)

will abnormally influence groundwater levels.

6. Section III of the GPP provides that remedial measures might include recharging the groundwater level outside the excavation limits. This section does not specify the details of this recharging system. Will Haley & Aldrich be recharging at the same rate that it is pumping water out/dewatering? (18.6)

7. If interlocking steel sheeting is used for the excavation support wall, what is the maximum amount that the water level, below each building in the zone of influence, will be lowered and what effect, if any, will this lowering have on the foundation system (wooden piling) of each building within the zone of influence? (18.7)

8. It has come to my attention that a soil mix wall is preferable to an interlocking steel sheeting support wall because it is less vulnerable to horizontal seepage (the soil mix wall does not have any joints) and vertical seepage from below. In light of these benefits, does MEPA have the regulatory power to require that the proponent Boston University employ a soil mix wall in the construction of the proposed School of Management? (18.8)

9. Neither the GPP nor Section 4.7 mention the existence of documents entitled "existing condition plans" indicating the water table elevation and foundation system beneath each building within the zone of influence along Bay State Road. (18.9)

Finally, the following represent comments regarding the EIR's Section 4.4-Visual Impacts:

1. The assertion that the proposed School of Management ("the Building") will not be obtrusive to the view corridor is fallacious and a distortion of the truth. (18.10)

2. The assertion that the Building will not dominate views within the historic district is fallacious and a distortion of the truth. (18.11)

3. The Building will significantly alter existing views at the street level. (18.12)

4. Views from the northern and southern banks of the Charles River will be seriously obscured by the Building. (18.13)

5. The assertion that only the upper portion of the Building will be visible from the riverbank is fallacious and a distortion of the truth. (18.14)

Sincerely,

Petah D. Steiger, Esq.

cc: Jamie M. Fay, Fort Point Associates

19. YVONNE M. HOMSY

From: Yvonne M. Homsy
Date: January 18, 1994

Comment # and Response

19.1 The Boston University Task Force is the group designated by the City to provide community review of major projects on the Boston University Charles River Campus. This Task Force includes two groups from Bay State Road and three from Kenmore Square. Of these five groups, four have expressed explicit support for the new School of Management project (see letters #10, 11, 12, and 13). Meetings were noticed and held in accordance with City and MEPA requirements. Additional meetings were held with concerned Bay State Road and Kenmore Tower residents to specifically discuss their concerns. Additional description of the Agency and Community Review process may be found in Section 1.5, Agency and Community Review Process.

19.2 The Boston University Master Plan states that a number of uses are contemplated for Parcel Q including, not limited to, 120,000 square foot new School of Management. Also, please see Section 3.2.2, Master Plan Consistency.

The square footage description of the Project is determined in accordance with the Boston Zoning Code and in consultation with Boston Inspectional Services Department which results in approximately 321,700 gross square feet.

19.3 While it is true that some shadows are created by the Project on Bay State Road, these shadows are mostly evident in the winter months but even these do not continue throughout the day on residences. A complete analysis is contained in Section 4.6, Atmospheric Elements.

19.4 Figure 4-12 offers an accurate view of what a person would see standing across Bay State Road looking at the Project. From this location the trees are in very close proximity to the viewer and therefore appear very large in comparison to the dormitory and Project which are farther away.

19.5 The preferred nine story alternative does provide significant reduction in height and massing as illustrated in Chapter 4.0, Historic Resources. The traffic and noise impacts of the Project do not significantly change. However, these impacts have been determined to be minimal. An analysis of noise and traffic are found in the Project Impact Report submitted to the City. Furthermore, these impacts would not likely be very different for a building which complied with the original B-4 zoning.

19.6 The Project will be seen from the historic district, Charles River bank and will likely obstruct some views from Kenmore Towers. A building built in accordance with the original B-4 zoning would likely have similar visual impacts.

19.7 Depending on the age and use of a building, the size of a story can vary greatly between buildings. Therefore, actual height above ground is a consistent method to describe building sizes. The Project is proposed to have nine floors above ground and therefore it is accurate to call it a nine story building.

19.8 The Project building is approximately 166 feet above ground and approximately 186 feet above sea level based on Boston City Datum.

19.9 The parking spaces on-site will be increased by 89 spaces or 49%. This does not translate to 49% increase in traffic volume. The actual increase in new Project-related traffic volume on streets near the site is very small and will not affect traffic operations to any significant degree. Also see responses 3.1 and 15.2 above.

19.10 Please see Response 19.9 above. In addition, access to the Project garage is designed to consolidate movements into and out of the facility on Commonwealth Avenue thereby eliminating incentive to use Bay State Road for parking associated with the Project building. A complete transportation analysis, including traffic and parking associated with Red Sox games, is included in the Project Impact Report submitted to the City.

19.11 Analyses of wind impacts associated with the Project indicate it will have an overall positive impact on the historic district particularly along Sherborn Street. The Blandford Street MBTA trolley stop may experience increased wind conditions. Accordingly, the University has committed to contributing to new shelters at the stop and is currently working closely with the MBTA on this improvement. Please see section 4.6, Atmospheric Elements for a detailed wind analysis.

19.12 The University shares concern about potential impacts from groundwater level changes associated with the Project and is taking special precautions in the construction excavation support and permanent building support systems for the building. Also see responses 8.2, 8.3, and 14.3. A Building and Groundwater Level Protection plan is provided in Appendix D and discussed in Section 4.7.2, Foundation.

19.13 It may be noted that the Boston Civic Design Commission (BCDC) reviewed and voted on the original ten story project design. The reduced nine story alternative was developed later, largely in response to the BCDC and other community and agency comments. The preferred nine story alternative was not formally presented, or voted on, by the BCDC. Any future development in the area by the University will be conducted in conjunction with the Boston University Task Force and City officials. Please see response 14.4 above.

January 18, 1994 ⑲

RECEIVED
JAN 2 1 1994
MEPA

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202
Attn: MEPA Unit

9202

Dear Secretary Coxe:

I am enclosing some comments regarding the Boston University School of Management Draft Environmental Impact Report submitted December 15, 1993.

1. The review process for the proposed building was
conducted without community residents being informed of
either the meetings, plans, or allowed to participate in (19.1)
the review process. Decisions taken at these meetings did
not take into account the concerns of the residents of the
neighboring historic district and the Kenmore Square area.
On page 1-9, nine of the sixteen civic associations listed
represent areas outside the Kenmore Square/Bay State Road
area.

2. Contrary to what is stated on page 3-5 of the report,
the proposed building is not consistent with the B.U. Master
Plan agreed upon by the BRA on March 29, 1987. According to
that plan, Site Q would be used to build a 120,000-square
foot building to house the School of Management. B. U.
has disregarded the Master Plan and now proposes to build a
School of Management and Administration building of 321,700
square feet (see page 2-12). However on page 2-16 the mechanical
penthouse is listed at 18,800 square feet. Should
this amount be added to the 321,700, thus making a total of
339,700 square feet? Moreover, the below ground three levels
are listed at 122,100 square feet; thus the overall total is
461,800 square feet. Please clarify the size of the building. (19.2)

Contrary to what is stated in the report, the proposed
building will severely diminish the light and sun on Bay State
Road. It will cast a permanent shadow on portions of Bay State (19.3)
Road, including the building where I live (see page 1-20).

In some of the drawings, e.g. Figure 4-12, the trees on
Bay State Road in front of the B.U. dormitory at 140 Bay State (19.4)
Road are inaccurately drawn as taller than the dormitory and
even taller than the proposed 166-foot building!

3. I regard the use of the term "story" in the report
misleading. What is the point of the insistent comparison
of a 9-story building to a 10-story building? The difference
in height between the two buildings is 18 feet, an insignificant (19.5)
amount. At the reduced height there will still be a severe
loss of light and sun and shadowing. The traffic, noise gener-

ated by the traffic and mechanicals of the building, air pollution, and wind remain the same.

The height and mass of the structure will overwhelm and shadow Bay State Road and the Charles River Basin. The (19.6) residents at 566 Commonwealth Avenue will lose their views of the river. The structure will dominate views from within the historic district and will be visible from the riverbank.

4. In Figure 2-19 140 Bay State Road, a 9-story building labeled 79'2", is shown beside the proposed 9-story building labeled 166'2" tall; the latter is obviously more than twice (19.7) the height of the former building. Compared to 140 Bay State Road, the proposed building should be more accurately described as an 18-story building.

What is the actual height of the proposed building? Note the figures 166'2'' on the left side of the drawing in Figure 2-19 and 185'10" (barely readable) on the right side. Is the (19.8) actual height of the building 166'2" plus 18'9" for the mechanical penthouse, i.e. 185'10"? Please clarify.

5. The three levels of below surface parking is designed to accommodate 181 parking spaces, the number now available on the site, plus an additional 89 spaces. According to the Massachusetts Bay Transportation Authority (see letter dated (19.9) 3/15/93 by Ms. V. Marks), the "consolidation of parking on this one site will increase traffic by 50 percent over existing traffic."

Also according to the MBTA (see letter dated 9/27/93 by Ms. J. O'Brien): "As you know, ridership calculations by Vanasse Hangen, Brustlin, Inc. (VHB) indicated that the project will not significantly contribute to a net increase in MBTA rideship."

The increase of 50 percent in traffic in an already heavily trafficked area can result in horrendous gridlock. As you know, Bay State Road is presently being used as an alternate to Commonwealth Avenue by vehicles and trucks. The effects of this increased traffic on Bay State Road and Commonwealth Avenue, par- (19.10) ticularly during the baseball season will be horrific. The resulting increase in carbon monoxide and other pollutants could have deleterious effects on the health of those living and working in the area.

6. Since the proposed building will greatly protrude above (19.11) the surrounding area, it is expected that winds at the pedestrian levels will increase in some of the areas.

7. As a property owner I am greatly concerned about the possible decrease in the ground water level during excavation. Although the report states that there will be periodic recording of groundwater levels in installed instruments, the lowering of the water table could seriously affect the structures of the (19.12) buildings on Bay State Road. What assurance do property owners have that such damage will not occur?

8. As has been commented by so many, the size of the proposed building is too massive for the site and area. (19.13) Its design was rejected by the Boston Civic Design Commission. If built, it could set a precedent for scale and massing for the area. It is possible to foresee a wall of similar buildings leading from Kenmore Square. The construction of the proposed School of Management would effect a drastic change in the environment of the area.

I look forward to hearing from you regarding these concerns and questions.

Sincerely yours,

Yvonne M. Homsy
137 Bay State Road
Boston, MA 02215

20. LAUREL KLUGE

From: Laurel Kluge
Date: January 7, 1994

Comment # and Response

20.1 The Project has undergone extensive analyses relating to traffic, shadow, daylight, urban design, and view impacts on public and sensitive areas through both the MEPA and the City Article 31 processes. These analyses have demonstrated that environmental and visual impacts are minimal. Furthermore, the Project will improve pedestrian safety and create improvements to the urban fabric along this section of Commonwealth Avenue.

20.2 Buildings in the vicinity of the Project range greatly from the historic townhouses on Bay State road at approximately 42 feet high to the Boston University Law School over 200 feet high. The Project building is approximately 160 feet high. While this is taller than Kenmore Towers at 566 Commonwealth Avenue (approximately 123 feet high) it is shorter than Warren Towers at 700 Commonwealth (approximately 175 feet high). Both buildings are in close proximity to the Project site. A comparison of these buildings may be found on Figure 2-19.

[illegible]

JD

20

RECEIVED
JAN 1 1994
MEPA

January 7, 1994

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
MEPA UNIT
Boston, MA 02202

9202

Dear Secretary Coxe:

I wish to register my opposition to Boston University's proposal to construct a nine story, 166 foot, new School of Management & Administration building at 595 Commonwealth Avenue. While I recognize BU's right to provide for its expanding needs and accept that new construction is inevitable, I do not support the university's requests for zoning relief as related to this proposal. Zoning regulations are in place to protect health-related and environmental concerns and to control excessive and over building. In this case, if the requested waivers are approved, the new structure will set a dangerous precedent by further compromising the remaining fragile natural resources in an already environmentally challenged urban area. The qualities of open sky, unimpeded views, sunlight, and sense of spaciousness are valuable to our Kenmore Square neighborhood and relate directly to the general well-being of residents and visitors. 20.1

I reviewed the Draft Environmental Impact Review and am dissatisfied with BU's limited revisions. Despite the height reduction from ten to nine stories, the proposed building remains far too dense for the site with FAR 6.5 on a parcel zoned for FAR 4.0. The modified structure would still be significantly taller and more massive than any of the buildings surrounding it and would dominate in a manner both overbearing and out of context. (Examples: 13 story, 123 foot Kenmore Tower at 566 Commonwealth Avenue; 9 story, 79 foot BU Towers dormitory at 140 Bay State Road). 20.2

When BU offers a scaled down building design appropriate for the neighborhood and conforming to current zoning regulations, I will support it. It is my hope that you concur and that related decisions from your office reflect this position.

Sincerely,

Laurel Kluge
566 Commonwealth Avenue
Apt. 802
Boston, MA 02215

Appendices

Appendix A *Distribution List*

Appendix B *MEPA and Massachusetts Historic Commission Documents*

- Environmental Notification Form
- Environmental Notification Form Certificate
- Notice of Project Change
- Notice of Project Change Certificate
- Letter on Review Process
- Draft Memorandum of Agreement

Technical Appendices (under separate cover)

Appendix C *Wind*

Appendix D *Oil and Hazardous Materials/Geotechnical Elements*

- Environmental Assessment
- Excavated Soil and Material Management Plan
- Building and Groundwater Level Protection Plan

Appendix E *Public Utilities*

- Demand Calculations
- Correspondence

Appendix A Distribution List

DISTRIBUTION LIST

Ms. Trudy Coxe, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Mr. Michael Connolly
Secretary of State
State House
Boston, MA 02133

Keith Grillo - DAQC
Department of Environmental Protection
One Winter Street, 7th floor
Boston, MA 02108

State Clearinghouse
E.O.C.D.
00 Cambridge Street
14th Floor
Boston, MA 02202

Ms. Judith McDonough, Executive Director
Massachusetts Historical Commission
80 Boylston Street
Boston, MA 02116

Ms. Katina Belezos
Massachusetts Water Resources Authority
100 First Street
Charlestown Navy Yard
Charlestown, MA 02129

J. O'Brien
John Krajovic
Metropolitan District Commission
20 Somerset Street
Boston, MA 02108

Metropolitan Area Planning Council
60 Temple Place
Boston, MA 02111

Boston Landmarks Commission
One City Hall Square
Boston, MA 02201

Ms. Libby Blank
Boston Water & Sewer Commission
425 Summer Street
Boston, MA 02210

Ms. Marisa Lago, Director
Boston Redevelopment Authority
One City Hall Square
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Ms. Beverly Johnson
Boston Redevelopment Authority
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Ms. Lorraine Downey, Director
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Ms. Jane O'Brien
MBTA Planning and Budget
Ten Park Plaza
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Brona Simon
State Archaeologist
Massachusetts Historical Commission
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Boston, MA 02116

John Felix
MEPA Review Coordinator
DEP/Northeast
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Woburn, MA 01801

The Bay State Road Neighborhood Association
47 Bay State Road
Boston, MA 02215

Victor N. Themos, President
Bay State Road Civic Association
PO Box 8936 JFK
Boston, MA 02114

Edward J. Burrow, Co-Chair
Kenmore Residents Association
645 Beacon Street #325A
Boston, MA 02215

Sara Baker, Co-Chair
Kenmore Residents Association
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Boston, MA 02215

Pamela G. Beale, President
Kenmore Association, Inc./
Boston University Task Force
PO Box 644
Kenmore Station
Boston, MA 02215

Muriel C. Kasdon
S. Charles Kasdon, M.D.
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Boston, MA 02215

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PO Box 634
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464 Commonwealth Avenue
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Petah Steiger, Esq.
139 Bay State Road
Boston, MA 02215

E.H. Scott
108 Bay State Road
Boston, MA 02215

Yvonne Homsey
137 Bay State Road
Boston, MA 02215

Susan Park, President
Boston Preservation Alliance
Old City Hall
45 School Street
Boston, MA 02108

Brian Pfeiffer, Director
Society for the Preservation of New England
Antiquities
141 Cambridge Street
Boston, MA 02114

Vicki Jo Sandstead, Director
National Trust for Historic Preservation
7 Faneuil Hall Marketplace, 5th Fl.
Boston, MA 02109

Mr. Richard Mertens
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Dr. Eugene Holt
Bovina & Cohen
Wall Street Plaza
88 Pine Street
New York, NY 10005

Dr. Stephen Corn
566 Commonwealth Avenue
Boston, MA 02215

Mr. Fred Taylor
566 commonwealth Avenue
Boston, MA 02215

Mr. Richard Forman
566 Commonwealth Avenue
Boston, MA 02215

Ms. Victoria Gewirz
566 Commonwealth Avenue
Boston, MA 02215

Appendix B MEPA and Massachusetts Historic Commission Documents

BOSTON UNIVERSITY SCHOOL OF MANAGEMENT

Environmental Notification Form

Submitted To:

Executive Office of Environmental
Affairs

Proponent:

Boston University

Prepared By:

Fort Point Associates
M/V Chelsea
300 Congress Street
Boston, MA 02210
(617) 357-7044

October 30, 1992

Table of Contents

Environmental Notification Form - Boston University School of Management

Attachment A Project Area Map

Attachment B Site Plan and Building Concept

Attachment C Transportation

Attachment D Site Access

Attachment E Archaeological/Historical

Attachment F Historic Tidelands Jurisdiction

Attachment G Solid Waste and Hazardous Materials

Attachment H Project Impact Report Scope

Attachment I Distribution List

ENVIRONMENTAL NOTIFICATION FORM

I. SUMMARY

A. Project Identification

1. Project Name Boston University-School of Management
Address/Location 595 Commonwealth Avenue

City/Town Boston, MA
2. Project Proponent Boston University
Address 25 Buick Street, Boston, MA 02215
3. Est. Commencement 1993. Est. Completion 1995.
Approx. Cost $ 80 million. Status of Project Design 5 % Complete.
4. Amount (if any) of bordering vegetated wetlands, salt marsh, or tidelands to be dredged, filled, removed, or altered (other than by receipt of runoff) as a result of the project.
0 acres 0 square feet.
5. This project is categorically included and therefore requires preparation of an EIR.
Yes ____ No x ?

B. Narrative Project Description
Describe project and site.

Boston University proposes to consolidate and upgrade the School of Management and administrative services in a new building at 595 Commonwealth Avenue. The project consists of a ten story building containing approximately 260,000 S.F. for the new School of Management; 100,000 S.F. administrative center; 270 parking spaces in three levels below grade for a total of 360,000 S.F.

The site is approximately 1 acre in size and is currently used as surface parking. The site is located at the northeast corner of Commonwealth Avenue and Sherborn Street near Kenmore Square in Boston.

This project reflects goals set forth in the Boston University Charles River Campus Master Plan - 1986-1996.

Copies of the complete ENF may be obtained from (proponent or agent):
Name: Rayna Rubin Firm/Agency: Fort Point Associates
Address: 300 Congress St., Boston Phone No. (617) 357-7044

1987 THIS IS AN IMPORTANT NOTICE. COMMENT PERIOD IS LIMITED.
For Information, call (617) 727-5830

C. List the State or Federal agencies from which permits or other actions have been will be sought.

Agency Name	Permit	Date filed; file no.
DEP/MWRA	Sewer Connection/ Extension	
DEP	Fossil Fuel Utilization	

D. List any government agencies or programs from which the proponent will seek financial assistance for this project:

Agency Name	Funding Amount
HEFA*	Undetermined

*Potential funding source

E. Areas of potential impact (complete Sections II and III first, before completing this section).

1. Check all areas in which, in the proponent's judgment, an impact of this project may occur. Positive impacts, as well as adverse impacts, may be indicated.

	Construction Impacts	Long Term Impacts
Inland Wetlands		
Coastal Wetlands Beaches		
Tidelands		
Traffic	x	x
Open Space/Recreation		
Historical Archaeological		x
Fisheries/Wildlife		
Vegetation Trees		
Agricultural Lands		
Water Pollution		
Water Supply/Use	x	x
Solid Waste		
Hazardous Materials	x	
Air Pollution	x	
Noise	x	
Wind, Shadow		x
Aesthetics		x
Growth Impacts		
Community/Housing and the Built Environment		
Other (Specify)		

2. List the alternatives which have been considered.

Alternative uses for the site were analyzed in the development of the Boston University Charles River Master Plan - 1986-1996. The plan identifies this site for the relocation and consolidation of a new School of Management and consolidation of administrative activities. The alternative proposed reflects these conclusions.

F. Has this project been filed with EOEA before? No __x__ Yes ______ EOEA No. ______

G. WETLANDS AND WATERWAYS

1. Will an Order of Conditions under the Wetlands Protection Act (c.131s.40) or a License under the Waterways Act (c.91) be required?
   Yes ______ No __x__
2. Has a local Order of Conditions been:
   a. issued? Date of issuance ______ ; DEQE File No. ______ .
   b. appealed? Yes ______ ; No __x__ .
3. Will a variance from the Wetlands or Waterways Regulations be required? Yes ______ ; No __x__ .

No wetlands will be impacted.

II. PROJECT DESCRIPTION

A. Map; site plan. Include an original 8½ x 11 inch or larger section of the most recent U.S.G.S. 7.5 minute series scale topographic map with the project area location and boundaries clearly shown. If available, attach a site plan of the proposed project.

Please see Attachments A and B.

B. State total area of project: __1.08__ acres.
Estimate the number of acres (to the nearest 1/10 acre) directly affected that are currently:

1. Developed __1.08__ acres*
2. Open Space
   Woodlands Recreation ______ acres
3. Wetlands ______ acres
4. Floodplain ______ acres
5. Coastal Area ______ acres
6. Tidelands ______ acres
7. Productive Resources
   Agriculture ______ acres
   Forestry ______ acres
8. Other ______ acres

*The site is currently a paved parking lot for Boston University staff and students. It is also used as parking for Red Sox games.

C. Provide the following dimensions, if applicable:

	Existing	Increase	Total
Length in miles			
Number of Housing Units			
Number of Stories	0	10	10
Gross Floor Area in square feet	0	360,000	360,000
Number of parking spaces	181	89	270
Total of Daily vehicle trips to and from site (Total Trip Ends)	*	*	*
Estimated Average Daily Traffic on road(s) serving site	*	*	*
1.			
2.			
3.			

*Please see Attachment C.

D. TRAFFIC PLAN. If the proposed project will require any permit for access to local roads or state highways, attach a sketch showing the location and layout of the proposed driveway(s).

Please see Attachment D.

III ASSESSMENT OF POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS

Instructions: Explain direct and indirect adverse impacts, including those arising from general construction and operations. For every answer explain why significant adverse impact is considered likely or unlikely to result. Positive impact may also be listed and explained.

Also, state the source of information or other basis for the answers supplied. Such environmental information should be acquired at least in part by field inspection.

A. Open Space and Recreation

1. Might the project affect the condition, use, or access to any open space and/or recreation area?

Explanation and Source: Some shadows will be cast on private open spaces owned by the Unversity north of the site and on a portion of the Esplanade during winter months. Source: Cannon

2. Is the project site within 500 feet of any public open space, recreation, or conservation land?

Explanation and Source: Yes

The Charles River Esplanade is approximately 500 feet from the site. This area provides public recreation space.

Source: Fort Point Associat

B. Historic and Archaeological Resources

1. Might any site or structure of historic significance be affected by the project? (Prior consultation with Massachusetts Historical Commission is advised.)

Explanation and Source:

Please see Attachment E.

2. Might any archaeological site be affected by the project? (Prior consultation with Massachusetts Historical Commission is advised.)

Explanation and Source: No

A review of Massachusetts Historic Commission records reveals no known archaeological resources at or near the site.

Source: Fort Point Associates

C. Ecological Effects

1. Might the project significantly affect fisheries or wildlife, especially any rare or endangered species? (Prior consultation with the Massachusetts Natural Heritage Program is advised).

Explanation and Source: No

The project site is entirely paved and in an urban setting.

Source: Fort Point Associates

2. Might the project significantly affect vegetation, especially any rare or endangered species of plant? (Prior consultation with the Massachusetts Natural Heritage Program is advised.)

(Estimate approximate number of mature trees to be removed: 0)

Explanation and Source:

The site is fully paved with a few street trees along the southwest corner. The project will contribute trees and other landscaping features to the site and sidewalk area.

Source: Fort Point Associates

3. Agricultural Land. Has any portion of the site been in agricultural use within the last 15 years? If yes, specify use and acreage.

Explanation and Source: No

This has been an urban site for over 15 years.

Source: Boston University

D. Water Quality and Quantity

1. Might the project result in significant changes in drainage patterns?

Explanation and Source: No

The site today is impervious and drains largely into a combined sewer. Surface runoff will be diverted to a separate storm drainage system in Commonwealth Ave. Dewatering will be required during construction.

Source: Haley & Aldrich

2. Might the project result in the introduction of any pollutants, including sediments, into marine waters, surface fresh waters or ground water?

Explanation and Source: No

The site is currently a paved automobile parking lot. Contaminants will be reduced by replacing surface parking with rooftop, landscaping and pedestrian plaza surfaces.

Source: Fort Point Associates

3. Does the project involve any dredging? No x Yes ____ Volume ____ . If 10,000 cy or more, attach completed Standard Application Form for Water Quality Certification, Part I (314 CMR 9.02(3), 9.90, DEQE Division of Water Pollution Control).

4. Will any part of the project be located in flowed or filled tidelands, Great Ponds, or other waterways? (Prior consultation with the DEQE and CZM is advised.)

Explanation and Source: No

Please see Attachment F.

Source: Fort Point Associates

5. Will the project generate or convey sanitary sewage? No ______ Yes x

If Yes, Quantity: 49,575 gallons per day

Disposal by: (a) Onsite septic systems .... Yes ______ No x

(b) Public sewerage systems (location; average and peak daily flows to treatment works) Yes x No ______

Explanation and Source:

As per 314 CMR 7.00, sewer connection guidelines for sewage flow estimates, approx. 49,575 gpd sewage would be generated. With current required water conservation measures, however, approx. 30,300 gpd would be generated with a 300gpm maximum waste flow.

Source: FPA/Cannon

6. Might the project result in an increase in paved or impervious surface over a sole source aquifer or an aquifer recognized as an important present or future source of water supply?

Explanation and Source: No

The project will result in a decrease in impervious surface of approximately 19%.

Source: Cannon

7. Is the project in the watershed of any surface water body used as a drinking water supply?

Explanation and Source: No

No wells or local sources of drinking water are present. The project will be served by the Boston Water and Sewer Commission.

Source: Fort Point Associates

8. Are there any public or private drinking water wells within a 1/2-mile radius of the proposed project?

Explanation and Source: No

Same as above.

9. Does the operation of the project result in any increased consumption of water?

Approximate consumption 49,575 gallons per day. Likely water source(s) MWRA/BWSC

Explanation and Source:

Water use in the building is not expected to be significantly more than sewer use. Furthermore, required water conservation measures will reduce actual water consumption.

Source: Fort Point Associates

E. Solid Waste and Hazardous Materials

1. Estimate types and approximate amounts of waste materials generated, e.g., industrial, domestic, hospital, sewage sludge, construction debris from demolished structures. How/where will such waste be disposed of?

Explanation and Source:

The building use is estimated to generate up to 20 cubic yards per day (compacted) of typical office/academic waste. No hazardous materials are associated with the building operation. Wastes associated with construction are discussed in Attachment G.

Source: Boston University

2. Might the project involve the generation, use, transportation, storage, release, or disposal of potentially hazardous materials?

Explanation and Source:

See Attachment G

Source: Haley & Aldrich

3. Has the site previously been used for the use, generation, transportation, storage, release, or disposal of potentially hazardous materials?

Explanation and Source: Yes

See Attachment G

Source: Haley & Aldrich

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1. Will space heating be provided for the project? If so, describe the type, energy source, and approximate energy consumption.

Explanation and Source:

Space heating for the project will be provided by 2 boilers plus an auxiliary boiler. They will be duel fuel units (natural gas/fuel oil). The project is anticipated to use approx. 10 million BTU per hour. Each boiler has a 5 million BTU per hour capacity.

Source: Cannon

2. Will the project require process heat or steam? If so, describe the proposed system, the fuel type, and approximate fuel usage.

   Explanation and Source: No

   Source: Boston University

3. Does the project include industrial processes that will release air contaminants to the atmosphere? If so, describe the process (type, material released, and quantity released).

   Explanation and Source: No

   Source: Boston University

4. Are there any other sources of air contamination associated with the project (e.g. automobile traffic, aircraft traffic, volatile organic compound storage, construction dust)?

   Explanation and Source:

   Construction activities will require dust control and precautions associated with handling of excavate. Traffic generation associated with the project is minimal. (See Attachment C.)

   Source: Fort Point Associates
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5. Are there any sensitive receptors (e.g. hospitals, schools, residential areas) which would be affected by air contamination caused by the project?

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1. Might the project result in the generation of noise?

   (Include any source of noise during construction or operation, e.g., engine exhaust, pile driving, traffic.)

   Explanation and Source:

   Construction activities will not involve pile driving or blasting. Techniques which minimize noise and vibration impacts on adjacent properties will be implemented. Foundation construction will involve sheet pile or pre-augured parking garage fans and air handling intake units will have noise altenuators.

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Explanation and Source:

There are some residences, a hotel and other Boston University buildings in the area. The project will not create new noise sources. Fans and external mechanical systems will have sound attenuating devices.

Cannon,
Source: Fort Point Associates

3. Is the project a sensitive receptor, sited in an area of significant ambient noise?

Explanation and Source: No

The project itself does not have particularly sensitive activities and is located in a high ambient noise area.

Source: Fort Point Associates

H. Wind and Shadow

1. Might the project cause wind and shadow impacts on adjacent properties?

Explanation and Source:
Pedestrian level wind impacts on adjacent properties are not expected to change significantly due to the building orientation, step-back design, rough facade materials and extensive landscaping program on Comm. Ave. and Sherborn St. The creation of new shadows are expected to be minimal due to sizeable neighboring buildings. In mid-winter, brief AM and PM shadows will extend beyond Storrow Dr. to the open space along the Charles River for portions of the day.

Source: FPA/Cannon

I. Aesthetics

1. Are there any proposed structures which might be considered incompatible with existing adjacent structures in the vicinity in terms of size, physical proportion and scale, or significant differences in land use?

Explanation and Source: No

The building scale and design is in keeping with other institutional buildings on the Boston University campus. The project will fill a void on Commonwealth Ave. and improve pedestrian conditions with landscaping and sidewalk treatments.

Source: Fort Point Associates

2. Might the project impair visual access to waterfront or other scenic areas?

Explanation and Source:

Views to the Charles River from publically accessible locations will not be impaired by the project. Views of the Citgo sign in Kenmore Square will be impaired from the buildings immediately to the west across Sherborn Street from the project site.

Source: Fort Point Associates

IV. CONSISTENCY WITH PRESENT PLANNING

Discuss consistency with current federal, state and local land use, transportation, open space, recreation and environmental plans and policies. Consult with local or regional planning authorities where appropriate.

The project site has been subject to comprehensive planning as part of the Boston University Charles River Campus Master Plan - 1986 - 1996. This master plan reflects consensus of participating officials, local residents, special interest groups, and Boston University officials regarding land use development, open space and recreation, and policy goals for the campus. This plan was officially submitted to the City in 1987.

The project is consistent with the goals of the master plan regarding land use, open space, and improvements near Kenmore Square. The project will not only consolidate and upgrade the School of Management facilities, it will fill a "gap" in the urban fabric along Commonwealth Avenue, add green space to the area, and improve pedestrian safety.

Discussions and reviews with the Boston Redevelopment Authority, Boston Transportation Department, and Boston Civic Design Commission have already begun. The proponent has agreed to voluntarily participate in the city environmental review program as described in Article 31 and has received a Scoping Determination for the Project Impact Report. See Attachment H.

V. FINDINGS AND CERTIFICATION

A. The public notice of environmental review has been/will be published in the following newspaper(s):

(NAME) Boston Herald **(Date)** November 2, 1992

B. This form has been circulated to all agencies and persons as required by 301 CMR 11.24.

10/29/92
Date

Signature of Responsible Officer or Project Proponent

Paul Rinaldi
Name (print or type)

Address 25 Buick Street
Boston, MA 02215

Telephone Number 617/353-2895

10/29/92
Date

Signature of person preparing ENF (if different from above)

Rayna Rubin
Name (print or type)

Address 300 Congress Street
Boston, MA 02210

Telephone Number 617/357-7044

ENVIRONMENTAL NOTIFICATION FORM

I. SUMMARY

A. Project Identification

1. Project Name Boston University-School of Management
   Address/Location 595 Commonwealth Avenue
   City/Town Boston, MA
2. Project Proponent Boston University
   Address 25 Buick Street, Boston, MA 02215
3. Est. Commencement 1993. Est. Completion 1995.
   Approx. Cost $ 80 million. Status of Project Design 5 % Complete.
4. Amount (if any) of bordering vegetated wetlands, salt marsh, or tidelands to be dredged, filled, removed, or altered (other than by receipt of runoff) as a result of the project.
   0 acres 0 square feet.
5. This project is categorically included and therefore requires preparation of an EIR.
   Yes _____ No x ?

B. Narrative Project Description
   Describe project and site.

Boston University proposes to consolidate and upgrade the School of Management and administrative services in a new building at 595 Commonwealth Avenue. The project consists of a ten story building containing approximately 260,000 S.F. for the new School of Management; 100,000 S.F. administrative center; 270 parking spaces in three levels below grade for a total of 360,000 S.F.

The site is approximately 1 acre in size and is currently used as surface parking. The site is located at the northeast corner of Commonwealth Avenue and Sherborn Street near Kenmore Square in Boston.

This project reflects goals set forth in the Boston University Charles River Campus Master Plan - 1986-1996.

Copies of the complete ENF may be obtained from (proponent or agent):
Name: Rayna Rubin Firm/Agency: Fort Point Associates
Address: 300 Congress St., Boston Phone No. (617) 357-7044

1987 THIS IS AN IMPORTANT NOTICE. COMMENT PERIOD IS LIMITED.
For Information, call (617) 727-5830

C. List the State or Federal agencies from which permits or other actions have been/will be sought:

Agency Name	Permit	Date filed; file no.
DEP/MWRA	Sewer Connection/ Extension	
DEP	Fossil Fuel Utilization	

D. List any government agencies or programs from which the proponent will seek financial assistance for this project:

Agency Name	Funding Amount
HEFA*	Undetermined

*Potential funding source

E. Areas of potential impact (complete Sections II and III first, before completing this section).

1. Check all areas in which, in the proponent's judgment, an impact of this project may occur. Positive impacts, as well as adverse impacts, may be indicated.

	Construction Impacts	Long Term Impacts
Inland Wetlands		
Coastal Wetlands Beaches		
Tidelands		
Traffic	x	x
Open Space/Recreation		
Historical Archaeological		x
Fisheries/Wildlife		
Vegetation Trees		
Agricultural Lands		
Water Pollution		
Water Supply/Use	x	x
Solid Waste		
Hazardous Materials	x	
Air Pollution	x	
Noise	x	
Wind/Shadow		x
Aesthetics		x
Growth Impacts		
Community/Housing and the Built Environment		

Other (Specify) ____________________

2. List the alternatives which have been considered.

Alternative uses for the site were analyzed in the development of the Boston University Charles River Master Plan - 1986-1996. The plan identifies this site for the relocation and consolidation of a new School of Management and consolidation of administrative activities. The alternative proposed reflects these conclusions.

F. Has this project been filed with EOEA before? No x Yes ______ EOEA No. ______

G. WETLANDS AND WATERWAYS

1. Will an Order of Conditions under the Wetlands Protection Act (c.131s.40) or a License under the Waterways Act (c.91) be required?
   Yes ______ No x
2. Has a local Order of Conditions been:
   a. issued? Date of issuance ______ ; DEQE File No. ______ .
   b. appealed? Yes ______ ; No x .
3. Will a variance from the Wetlands or Waterways Regulations be required? Yes ______ ; No x .

No wetlands will be impacted.

II. PROJECT DESCRIPTION

A. Map; site plan. Include an original 8½ x 11 inch or larger section of the most recent U.S.G.S. 7.5 minute series scale topographic map with the project area location and boundaries clearly shown. If available, attach a site plan of the proposed project.

Please see Attachments A and B.

B. State total area of project: 1.08 acres.
Estimate the number of acres (to the nearest 1/10 acre) directly affected that are currently:

1. Developed 1.08 acres*
2. Open Space
   Woodlands Recreation ______ acres
3. Wetlands ______ acres
4. Floodplain ______ acres
5. Coastal Area ______ acres
6. Tidelands ______ acres
7. Productive Resources
   Agriculture ______ acres
   Forestry ______ acres
8. Other ______ acres

*The site is currently a paved parking lot for Boston University staff and students. It is also used as parking for Red Sox games.

C. Provide the following dimensions, if applicable:

	Existing	Increase	Total
Length in miles			
Number of Housing Units			
Number of Stories	0	10	10
Gross Floor Area in square feet	0	360,000	360,000
Number of parking spaces	181	89	270
Total of Daily vehicle trips to and from site (Total Trip Ends)	*	*	*
Estimated Average Daily Traffic on road(s) serving site	*	*	*
1.			
2.			
3.			

*Please see Attachment C.

D. TRAFFIC PLAN. If the proposed project will require any permit for access to local roads or state highways, attach a sketch showing the location and layout of the proposed driveway(s).

Please see Attachment D.

III ASSESSMENT OF POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS

Instructions: Explain direct and indirect adverse impacts, including those arising from general construction and operations. For every answer explain why significant adverse impact is considered likely or unlikely to result. Positive impact may also be listed and explained.

Also, state the *source* of information or other basis for the answers supplied. Such environmental information should be acquired at least in part by field inspection.

A. Open Space and Recreation

1. Might the project affect the condition, use, or access to any open space and/or recreation area?

Explanation and Source: Some shadows will be cast on private open spaces owned by the Unversity north of the site and on a portion of the Esplanade during winter months. Source: Cannon

2. Is the project site within 500 feet of any public open space, recreation. or conservation land?

Explanation and Source: Yes

The Charles River Esplanade is approximately 500 feet from the site. This area provides public recreation space.

Source: Fort Point Associates

B. Historic and Archaeological Resources

1. Might any site or structure of historic significance be affected by the project? (Prior consultation with Massachusetts Historical Commission is advised.)

Explanation and Source:

Please see Attachment E.

2. Might any archaeological site be affected by the project? (Prior consultation with Massachusetts Historical Commission is advised.)

Explanation and Source: No

A review of Massachusetts Historic Commission records reveals no known archaeological resources at or near the site.

Source: Fort Point Associates

C. Ecological Effects

1. Might the project significantly affect fisheries or wildlife, especially any rare or endangered species? (Prior consultation with the Massachusetts Natural Heritage Program is advised).

Explanation and Source: No

The project site is entirely paved and in an urban setting.

Source: Fort Point Associates

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(Estimate approximate number of mature trees to be removed: 0)

Explanation and Source:

The site is fully paved with a few street trees along the southwest corner. The project will contribute trees and other landscaping features to the site and sidewalk area.

Source: Fort Point Associates

3. Agricultural Land. Has any portion of the site been in agricultural use within the last 15 years? If yes, specify use and acreage.

Explanation and Source: No

This has been an urban site for over 15 years.

Source: Boston University

D. Water Quality and Quantity

1. Might the project result in significant changes in drainage patterns?

Explanation and Source: No

The site today is impervious and drains largely into a combined sewer. Surface runoff will be diverted to a separate storm drainage system in Commonwealth Ave. Dewatering will be required during construction.

Source: Haley & Aldrich

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Explanation and Source: No

The site is currently a paved automobile parking lot. Contaminants will be reduced by replacing surface parking with rooftop, landscaping and pedestrian plaza surfaces.

Source: Fort Point Associates

3. Does the project involve any dredging? No x Yes ______ Volume ______. If 10,000 cy or more, attach completed Standard Application Form for Water Quality Certification, Part I (314 CMR 9.02(3), 9.90, DEQE Division of Water Pollution Control).

4. Will any part of the project be located in flowed or filled tidelands, Great Ponds, or other waterways? (Prior consultation with the DEQE and CZM is advised.)

Explanation and Source: No

Please see Attachment F.

Source: Fort Point Associates

5. Will the project generate or convey sanitary sewage? No _____ Yes _x__

If Yes, Quantity: 49,575 gallons per day

Disposal by: (a) Onsite septic systems Yes _____ No _x__

(b) Public sewerage systems (location; average and peak daily flows to treatment works) Yes _x__ No _____

Explanation and Source:

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Explanation and Source: No

The project will result in a decrease in impervious surface of approximately 19%.

Source: Cannon

7. Is the project in the watershed of any surface water body used as a drinking water supply?

Explanation and Source: No

No wells or local sources of drinking water are present. The project will be served by the Boston Water and Sewer Commission.

Source: Fort Point Associates

8. Are there any public or private drinking water wells within a 1/2-mile radius of the proposed project?

Explanation and Source: No

Same as above.

9. Does the operation of the project result in any increased consumption of water?

Approximate consumption 49,575 gallons per day. Likely water source(s) MWRA/BWSC

Explanation and Source:

Water use in the building is not expected to be significantly more than sewer use. Furthermore, required water conservation measures will reduce actual water consumption.

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E. Solid Waste and Hazardous Materials

1. Estimate types and approximate amounts of waste materials generated, e.g., industrial, domestic, hospital, sewage sludge, construction debris from demolished structures. How/where will such waste be disposed of?

Explanation and Source:

The building use is estimated to generate up to 20 cubic yards per day (compacted) of typical office/academic waste. No hazardous materials are associated with the building operation. Wastes associated with construction are discussed in Attachment G.

Source: Boston University

2. Might the project involve the generation, use, transportation, storage, release, or disposal of potentially hazardous materials?

Explanation and Source:

See Attachment G

Source: Haley & Aldrich

3. Has the site previously been used for the use, generation, transportation, storage, release, or disposal of potentially hazardous materials?

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3. Does the project include industrial processes that will release air contaminants to the atmosphere? If so, describe the process (type, material released, and quantity released).

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   Source: Fort Point Associates
   VHB

5. Are there any sensitive receptors (e.g. hospitals, schools, residential areas) which would be affected by air contamination caused by the project?

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1. Might the project result in the generation of noise?

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1. Might the project cause wind and shadow impacts on adjacent properties?

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10/27/92
Date

Signature of Responsible Officer or Project Proponent

Paul Rinaldi
Name (print or type)

Address 25 Buick Street
Boston, MA 02215
Telephone Number 617/353-2895

10/29/92
Date

Signature of person preparing ENF (if different from above)

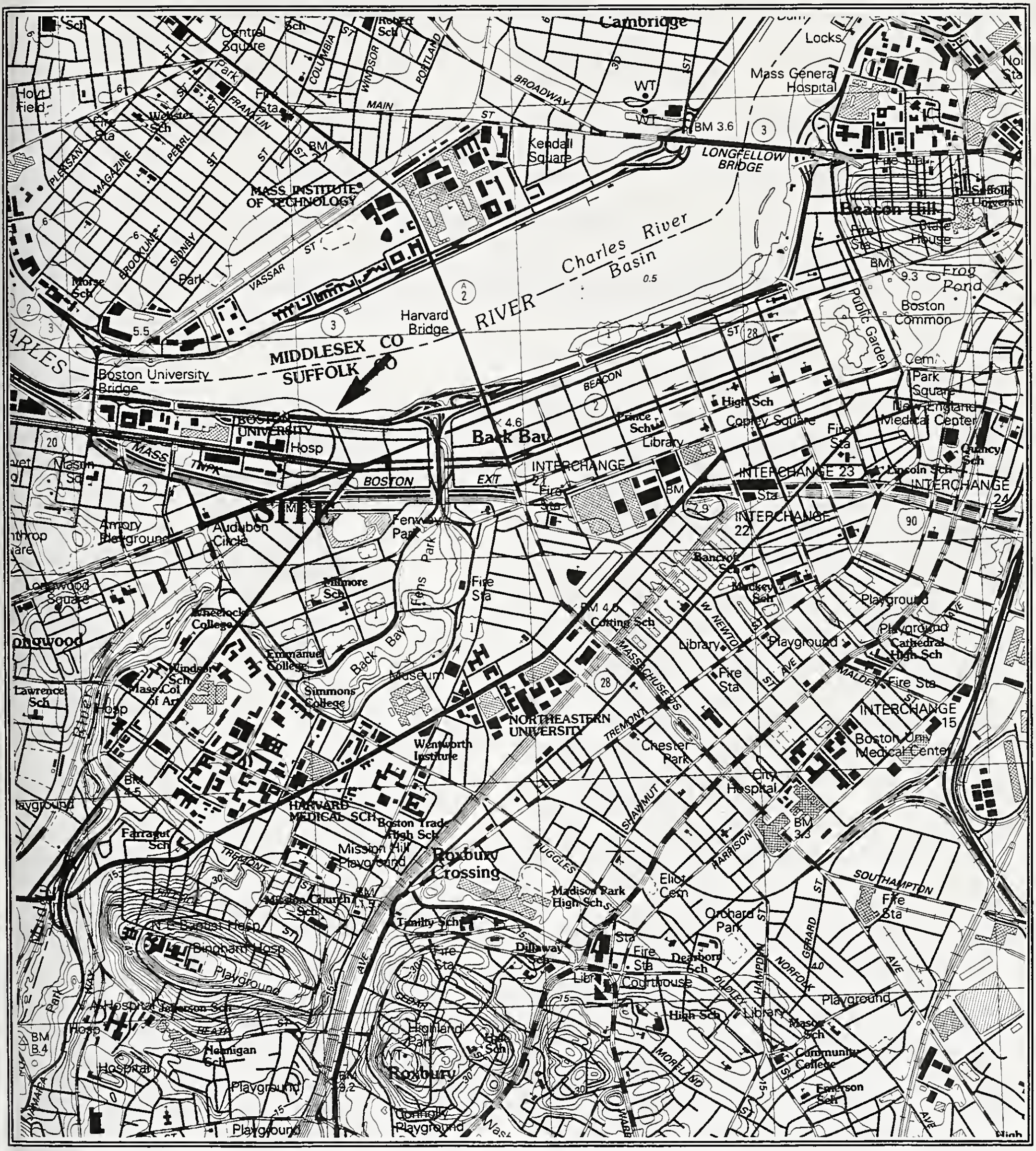
Rayna Rubin
Name (print or type)

Address 300 Congress Street
Boston, MA 02210
Telephone Number 617/357-7044

ATTACHMENT A

PROJECT AREA MAP

BOSTON SOUTH, MASSACHUSETTS



PROJECT AREA MAP

Prepared By:
Fort Point Associates

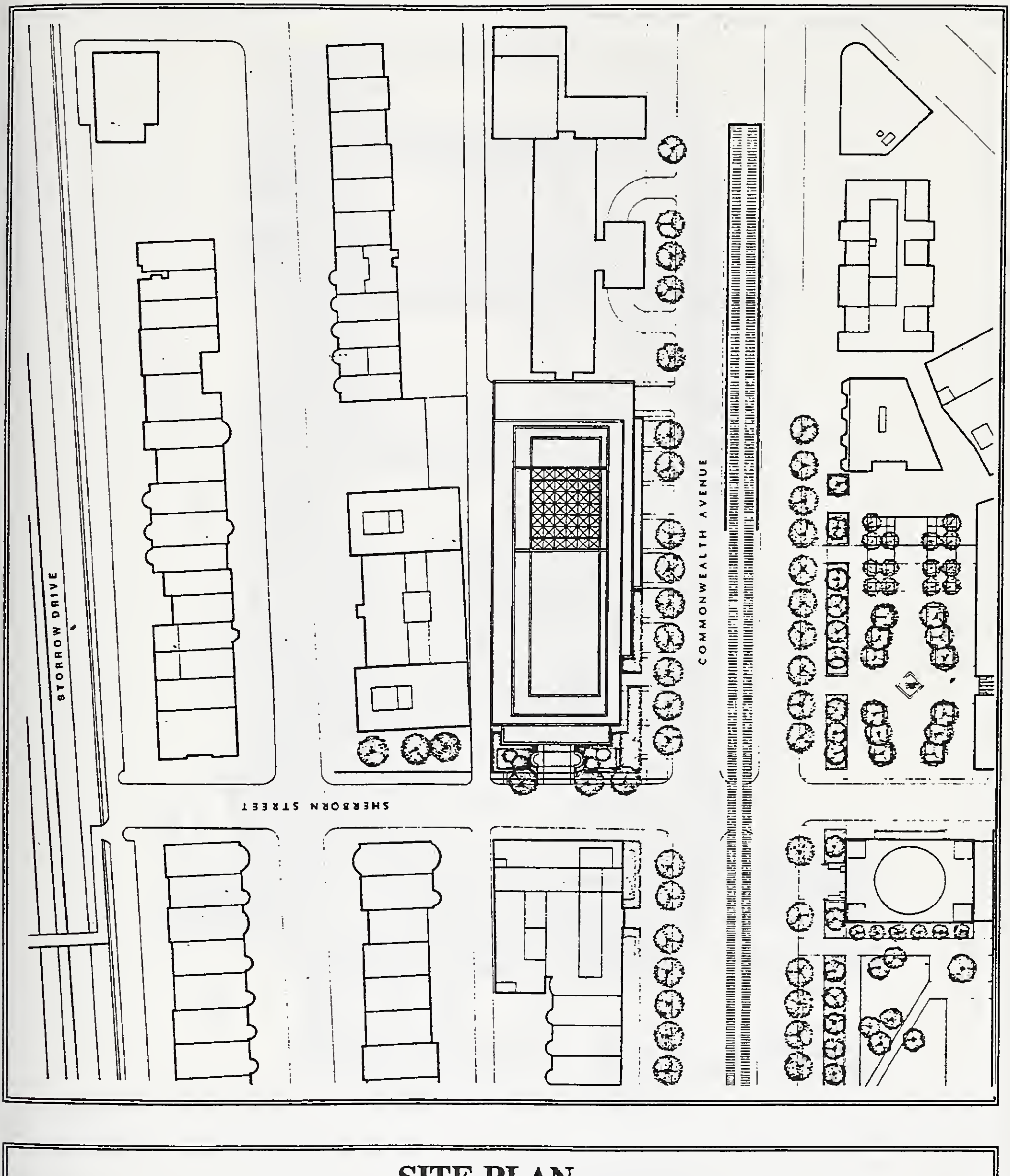
Exhibit 1

7.5 X 15 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:25 000

ATTACHMENT B

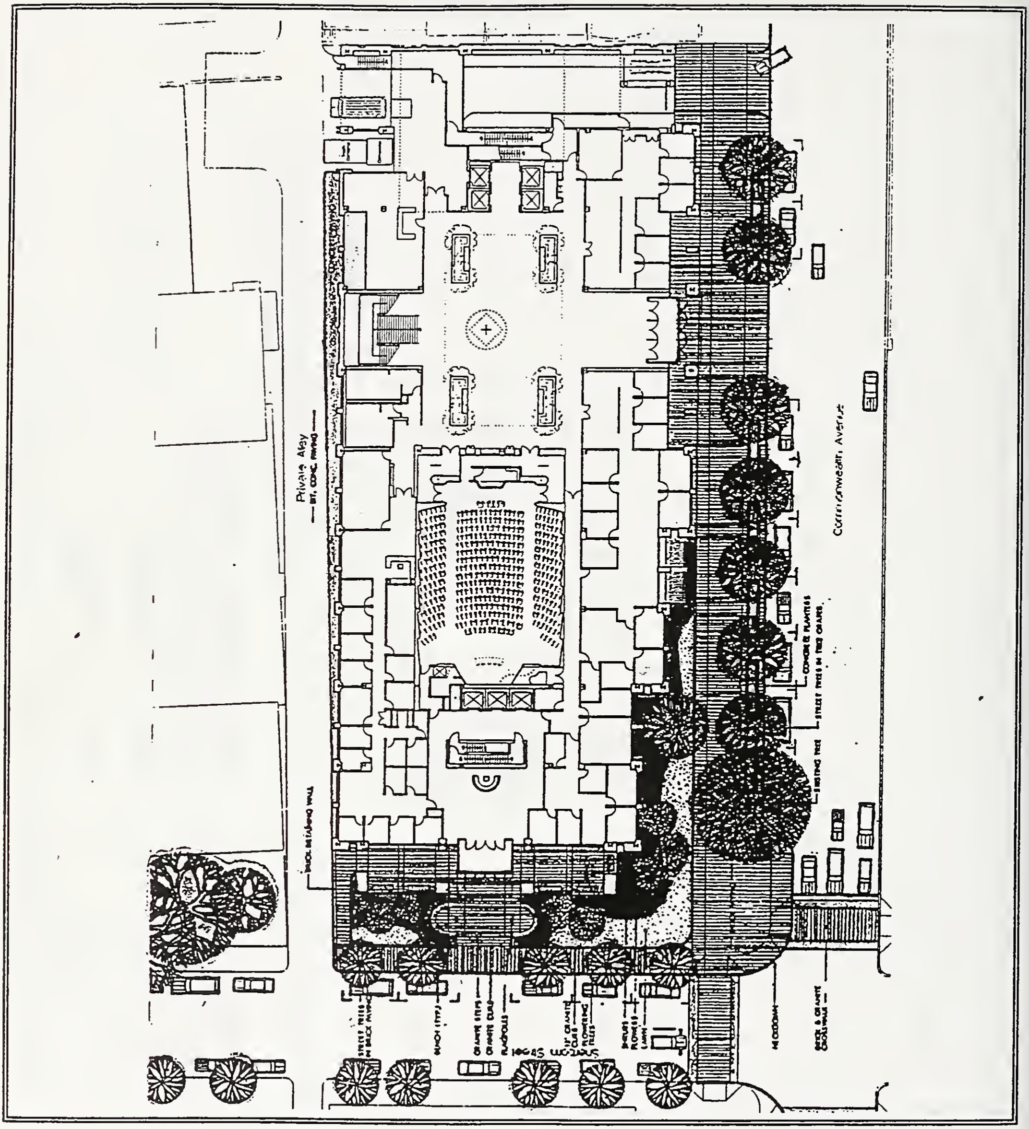
SITE PLAN AND BUILDING CONCEPT



SITE PLAN

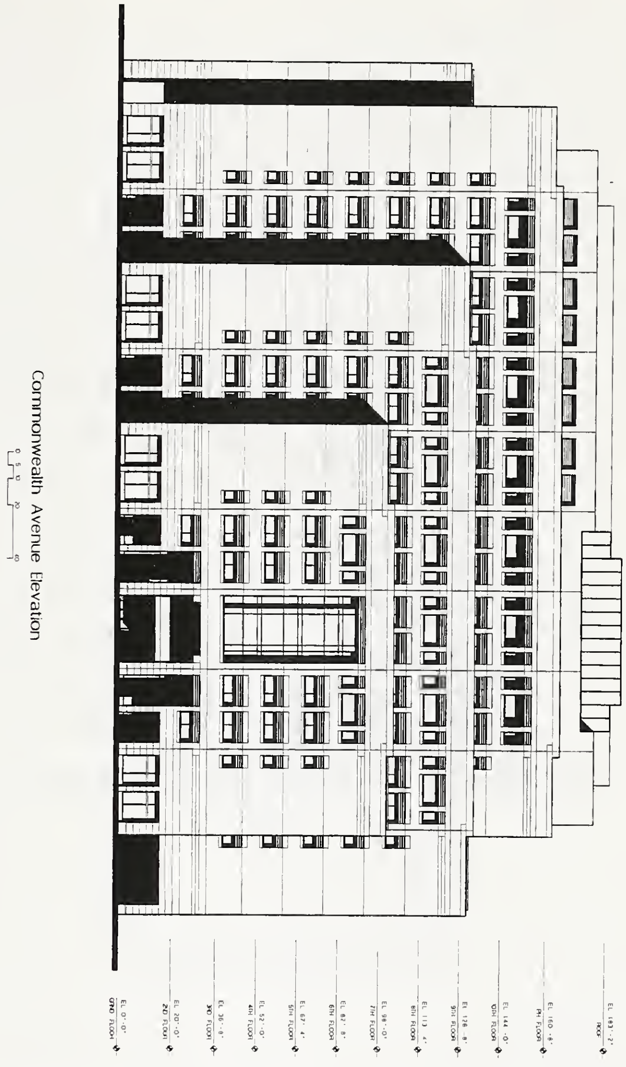
Prepared By: Cannon

Exhibit 2



LANDSCAPE PLAN

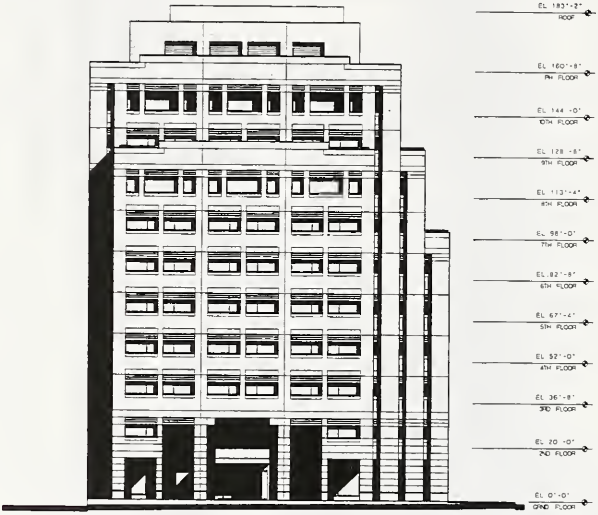
Prepared By: Cannon	**Exhibit 3**



COMMONWEALTH AVENUE ELEVATION

Prepared By: Cannon

Exhibit 4



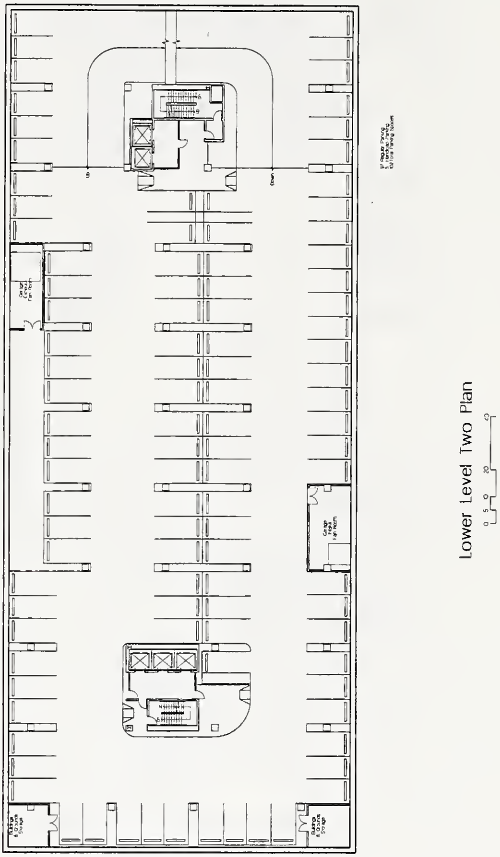
Sherborn Street Elevation

0 5 10 20 40

SHERBORN STREET ELEVATION

Prepared By: Cannon

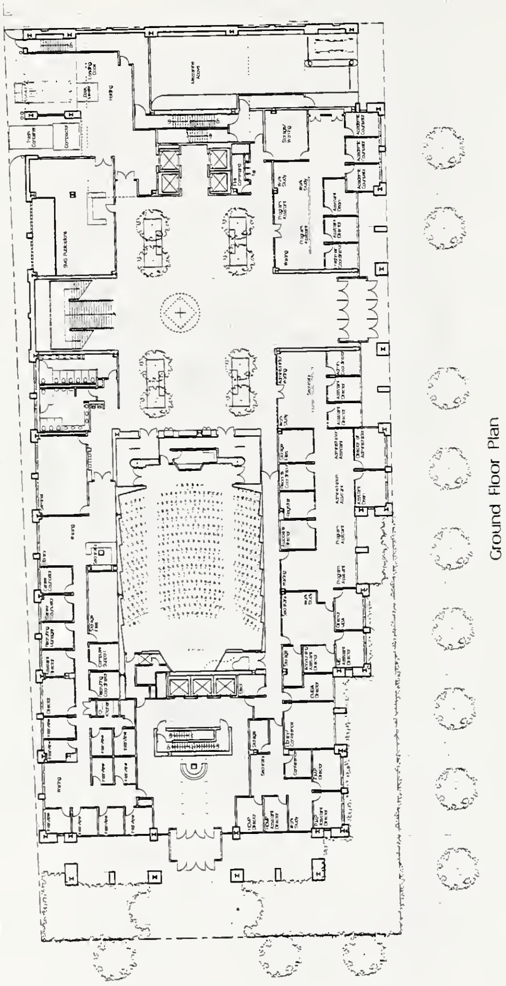
Exhibit 5



TYPICAL PARKING FLOOR PLAN

Prepared By: Cannon

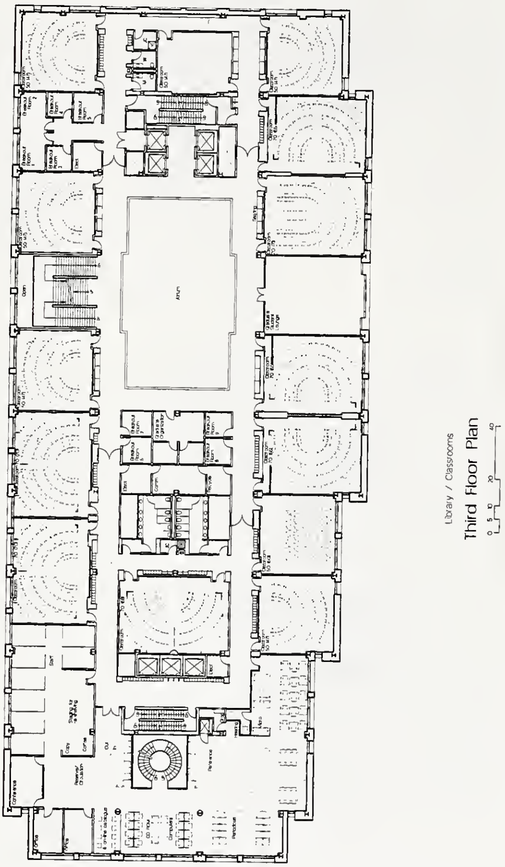
Exhibit 6



GROUND FLOOR PLAN

Prepared By: Cannon

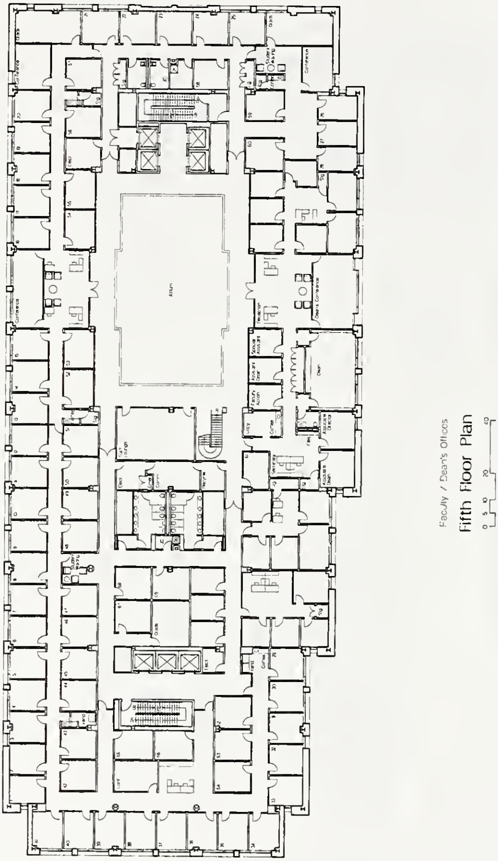
Exhibit 7



TYPICAL CLASSROOM FLOOR PLAN

Prepared By: Cannon

Exhibit 8



TYPICAL ADMINISTRATION FLOOR PLAN

Prepared By: Cannon

Exhibit 9

ATTACHMENT C

TRANSPORTATION

6.0 TRANSPORTATION

Introduction

This section presents a discussion of the traffic and parking issues associated with the new Boston University School of Management project. The following is a presentation of existing conditions and a preliminary forecast of future conditions as a result of the proposed project.

Two methods were used to evaluate the potential traffic generation associated with the project. The first method bases calculations on the existing traffic generation of the two parking lots upon which the project will be built. The second method is an estimate of the total traffic generation based on the building program, consisting of existing and net new traffic forecasts.

The projected increase in traffic associated with the project is expected to be limited, primarily because the University is not planning to enroll additional students or hire additional faculty or administrative staff as a result of the development. The only new employees anticipated to be hired would be a few workers for the dining services in the building and a few custodial workers.

Existing Parking Characteristics

The new School of Management will be constructed on what are now two Boston University employee parking lots located on the north side of Commonwealth Avenue east of Sherborn Street. These lots contain a total of 181 employee parking spaces and are currently served by separate curb cuts. There are several curb cuts along Commonwealth Avenue and Sherborn Street that served the separate prior uses on these two adjacent properties. According to the Boston University Office of Parking Services, these lots are in high demand. They essentially fill in the morning, stay full throughout the day, and empty in the late afternoon. There is virtually no daytime turnover in these lots during the course of a given day.

In addition to serving the employees who park there during the day, these parking lots also serve two other groups of parkers. During the evening, students who travel to the University for evening classes park in these and other parking areas. It is estimated that up to 15 students park in these lots on any given weekday evening when classes are held. Other than that, most of the spaces are vacant during the evening. The second use is for Red Sox parking. On Red Sox game days (weekends), the lots are once again filled to capacity. On the evening of Red Sox games, evening student parking is accommodated in other facilities which are not used for Red Sox parking.

Existing Roadway Traffic Characteristics

As mentioned previously, the development site is located on the north side of Commonwealth Avenue, just east of Sherborn Street between Kenmore Square and the Boston University Bridge. Commonwealth Avenue (State Route 30) is a major east/west urban arterial street passing through the length of the Boston University campus. The MBTA Green Line ("B" Branch) tracks are located in the median. Commonwealth Avenue, in the vicinity of the site, consists of two travel lanes and a parking lane in each direction. At the Sherborn Street/Blandford Street intersection, left-turn lanes are provided in each direction on Commonwealth Avenue. Metered curbside parking is generally permitted along both sides of the street.

To measure the level of traffic currently passing in front of the site, automatic traffic recorders were placed on both sides of Commonwealth Avenue during the week of May 4, 1992. The counts indicated the following traffic volumes:

Eastbound	15,500 vehicles per day
Westbound	16,900 vehicles per day
Total	32,400 vehicles per day

By way of comparison, traffic counts conducted for the 899-925 Commonwealth Avenue project showed that Commonwealth Avenue carried 44,350 daily vehicles west of the Boston University Bridge and 30,400 vehicles east of University Road in 1987.

Existing Site Vehicle Traffic Characteristics

As mentioned previously, there are a total of 181 parking spaces located on the site. These spaces are occupied by full-time University employees and are not used for turnover parking during the day. Because hourly turnover data were not available for this analysis, it has been assumed that twenty percent of the spaces are vacated and re-occupied once over the course of a typical day. Based on these assumptions, the following is an estimate of the existing vehicle trips to and from the two parking lots on a daily basis, including evening student vehicle trips and Red Sox parking vehicle trips:

Category	Number of Trips
Estimated daytime entering trips	181
Estimated daytime exiting trips	181
Subtotal	362
Assumed 20 percent turnover	72
Subtotal Daytime Trips	**434**
15 evening student trips in	15
15 evening trips out	15
Subtotal Daily Trips On Non-Red Sox Game Days	**464**
181 Red Sox parker trips in	181
181 Red Sox parker trips out	181
Less evening student trips	-30
Total Daily Trips on Red Sox Game Days	**796**

In summary, it is estimated that there a total of approximately 464 vehicle trips to and from the project site on weekdays when no Red Sox games are held and 796 total vehicle trips on Red Sox weekday game days.

Future Net New Traffic Generation Forecast

As mentioned earlier, with the construction of this project the University will be increasing its parking supply on the site from 181 spaces to 270 spaces, an increase of 89 spaces. With a total of 3,146 spaces on the campus, these added spaces represent less than three percent of the total supply. It is anticipated that the usage patterns of these spaces would be very similar to the existing spaces, with only two exceptions. First, seminar/conference attendants who park would be new to the campus. Second, on days when Red Sox games are held, it is anticipated that the same number of spaces now made available for Red Sox parking will be made available in the new garage; the 89 new spaces are not expected to be used for Red Sox parking.

To provide a conservative estimate of the project's future trip generating characteristics, the existing vehicle trips to and from the site were increased by 49 percent on non-Red Sox game days to reflect the increase from 181 spaces to 270 spaces. As a result, the existing 464 daily trips on non-Red Sox game days would grow to 692 future trips, an increase of 228 daily vehicle trips.

Similarly, on Red Sox game days it is estimated that the project would generate 1,024 trips, again an increase of 228 trips over the 796 daily vehicle trips that are estimated to now occur on Red Sox game days.

Using this method, it is estimated that the proposed School of Management project will add a total of 228 vehicle trips (114 entering and 114 exiting) to the roadway network at this location on a daily basis. On non-Red-Sox game days, most of these new trips will be relocated from other University-controlled parking areas where employees who will be transferred to the new building now park. A small number of the trips will be new to the campus, namely those associated with the conference/seminar use. It should be noted that the increases described above are a function of the 89 net new parking spaces only, not the proposed building program. The following discussion on total traffic generation provides for an overall assessment of all traffic generated to and from the new building.

Total Traffic Generation

Because the School of Management and other academic offices proposed for the building are currently located in other buildings on the campus, the project is anticipated to generate to generate only a negligible amount of new traffic for the University as a whole. To understand the project's impacts (separate from the analysis of parking above), the following analysis was completed.

This analysis of total traffic generation for the project (existing plus new trips) includes an estimate of all trips to and from the building itself on a daily basis. According to University estimates, on a typical active day such as a Wednesday at the University--when the most classes are scheduled and when a seminar/conference is underway--the following groups of individuals will travel to and from the building:

Category	Total Person Trips/Day (Two-way)
Undergraduate Students	2,200
Graduate Students	900
Administrative Employees and Visitors	700
Academic Employees and Visitors	400

Faculty and PhD Students	200
Executive Training	160
Total	**4,560**

Based on the above breakdown, it is estimated that 4,560 person trips will occur over the course of a typical weekday. Using information on the travel patterns of students, faculty, and staff obtained from the 1986 Boston University Campus Parking Study[1] and VHB estimates for seminar/conference attendees[2], it is estimated that the building, when complete, will generate a total of 2,125 daily vehicle trips. Of these, fewer than 200 trips would actually be net new trips to the campus and would primarily be associated with the seminar/conference space. This is because the majority of users of the proposed building are already using other facilities on the campus and would simply be relocated to this project site.

On occasion, the seminar/conference space will be used to its capacity (240 participants). At the rate of 0.5 vehicle trips entering and 0.5 vehicle trips exiting per participant (assuming 50 percent drive and each person makes one entering and one exiting trip per day) a total of 240 vehicle trips would occur, requiring approximately 120 parking spaces. These full-attendance conferences are anticipated to occur infrequently and will be treated in a manner similar to other special events on the campus. Special arrangements will be made to accommodate all parkers in this project's garage and in several other facilities. In addition, the Board of Trustees holds full meetings (75 people) three times per year. Approximately 125 additional vehicle-trips are estimated to occur when these meetings are held (assuming 50 non-resident trustees all drive 100 vehicle trips) and half of the other attendees drive to the building from other parts of the campus (25 vehicle trips).

Conclusion

Based on the analysis presented in this chapter, the proposed School of Management building is anticipated to add a total of 228 daily vehicle trips to the project site. Because most of these vehicle trips are already occurring on the streets surrounding adjacent portions of the University campus, only a small number of trips will be added overall. Therefore, the level of traffic impact of the proposed development will be negligible.

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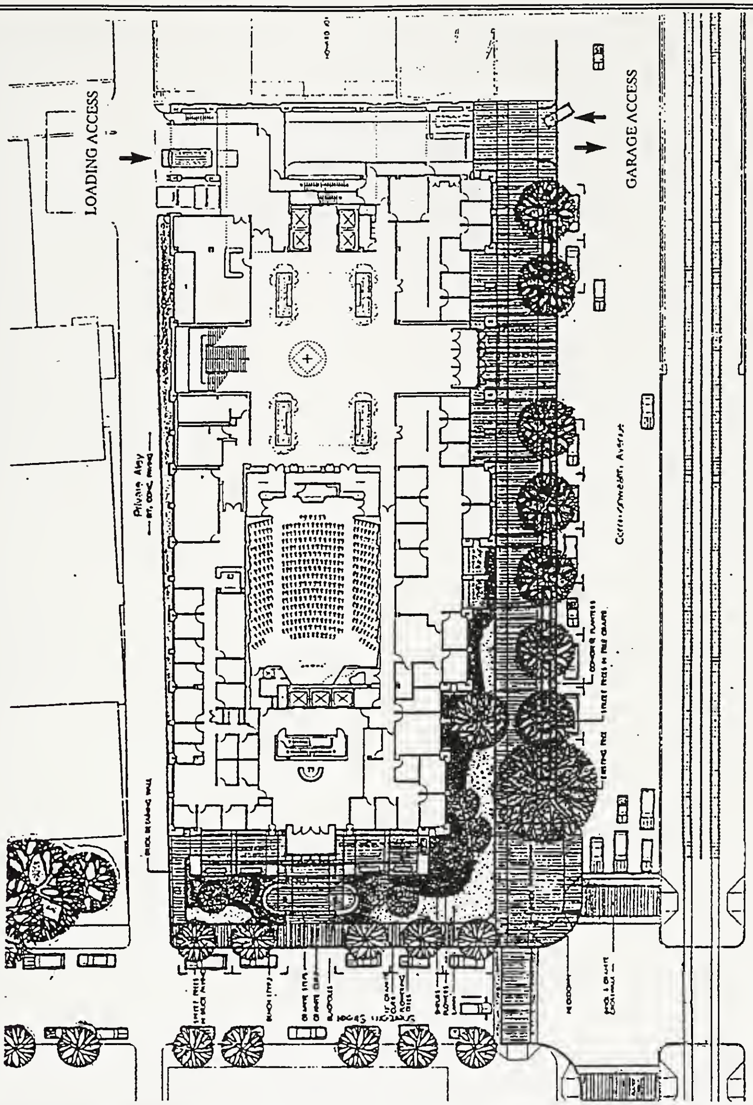
[1] Boston University Campus Parking Study, Vanasse Hangen Brustlin, Inc. 1986. This study showed that 23 percent of undergraduates, 73 percent of graduate students, 66 percent of staff, and 77 percent of faculty drive to campus and park their vehicles.

[2] It was assumed that 50 percent of attendants would drive and park with one person per vehicle and the rest would walk or take public transportation.

ATTACHMENT D

SITE ACCESS



VEHICULAR SITE ACCESS

Prepared By:
Fort Point Associates

Exhibit 10

ATTACHMENT E

ARCHAEOLOGICAL/HISTORIC

Fort Point Associates
M/V Chelsea
300 Congress Street
Boston, MA 02210
(617) 357-7044

MEMORANDUM

To: Rayna Rubin
From: Mike Kenny
Subject: School of Management - Historic Resources
Date: March 16, 1992

I visited the Massachusetts Historical Commission (MHC) on March 12 and the Boston Landmarks Commission (BLC) on March 16 to look for information regarding historically significant sites near the project area (corner of Commonwealth Avenue and Sherborn Street). I checked for three categories of information: 1) historic properties and districts, 2) historic archeological sites (eg, the foundation of a 17th century mill), and 3) prehistoric archeological sites (eg, an Indian burial ground). The first category has three sub-headings: a) National Register, b) State Register, and c) Local Landmarks. Here's what I found.

1. Historic Properties and Districts

See attached map for the locations of all of the historic properties and districts listed below.

a. National Register

There are seven sites that I thought were close enough to be potentially affected by the project, the furthest site being Audubon Circle. Only two of these sites are officially on the National Register, while the remaining five sites are potentially eligible for listing.

Officially Listed

Charles River Basin Historic District. Includes the bank of the river up to Storrow Drive.

Olmstead Park System. Begins at Charles River District between Charlesgate East and Charlesgate West and snakes its way inland. Includes the Back Bay Fens.

Potentially Eligible for Listing

Bay State Road Area. Includes all houses fronting on Bay State Road between Granby Street (one block west of the project area) and Charlesgate West. Also includes area bounded by Charlesgate West, Newbury Street, Kenmore Street, and Raleigh.

Citgo Sign. 660 Beacon Street at Kenmore Square.

Feway Park. 45 Yawkey Way.

Riding School. 145-151 Ipswich Street. One or two blocks from Comm. Ave between Fenway Park and the Fens.

Audubon Circle District. Includes most buildings on Beacon Street that lie within 2 or 3 blocks of Audubon Circle. Also includes some buildings on certain streets off Beacon, including St. Mary's Street and Keswick.

b. State Register

It was my understanding that the State Register lists everything on the National Register, including potential listings, and then some. However, the State Register had information on only three of the sites listed above:

Charles River Basin Historic District. NRDIS[1] 12/22/78. 30 individual sites in district.

Bay State Road - Back Bay West Historic District. LL[2] 11/08/79. 200 individual sites in district (the entire section of street within Ward 5).

Olmstead Park System. NRDIS 12/08/71. 6 individual sites in district. Includes Back Bay Fens, Muddy River, and other inland areas.

c. Local Landmarks

The Boston Landmarks Commission also lists Bay State Road - Back Bay West as a historic district (see attached map for district boundaries). However, all other historic properties in the project area are listed individually. Using a list of properties organized by street, a list organized roughly by geographic area (eg,

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[1] National Register District. Indicates simultaneous listing on the National Register.

[2] Local Landmark. Indicates simultaneous listing by the Local Landmarks Commission.

Kenmore Square), and a street map, I found individual listings for a number of additional historic properties not accounted for on the National or State Registers. I limited the search to streets on the same side of the Mass. Pike as the project area.

642-660 Beacon Street. Formerly Peerless Motor Car Co. Citgo Sign rests on roof.

645 Beacon Street. Hotel Buckminster, at corner of Beacon Street and Brookline Street.

602 Comm. Ave. Formerly Temple Adath Israel, now BU's Morse Auditorium.

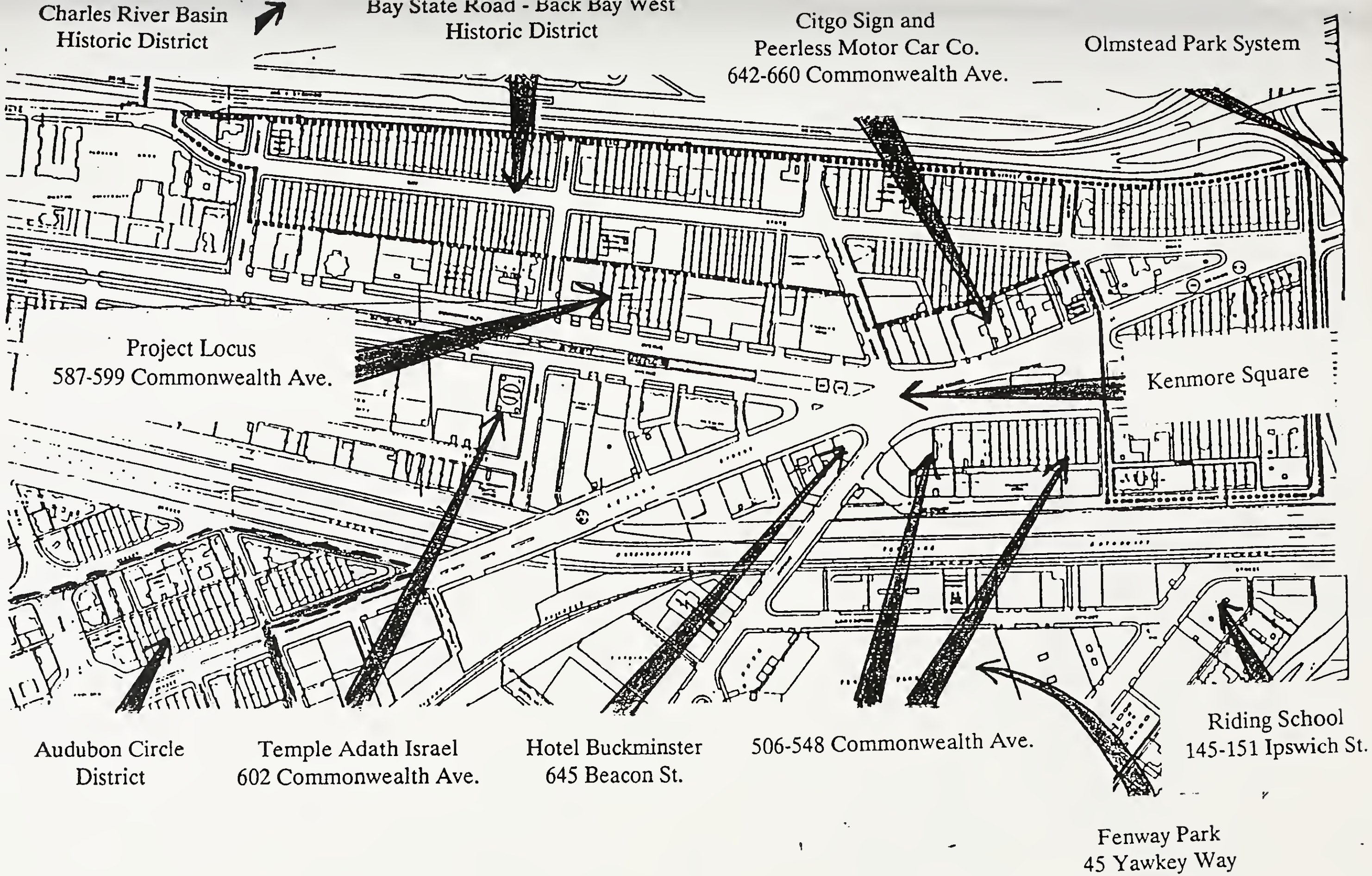
Numerous buildings on Commonwealth Ave that front on Kenmore Square. Includes #'s 506-522, 536, and 542-548 (all even #'s).

2. Historic Archeological Sites

None listed or mapped.

3. Prehistoric Archeological Sites

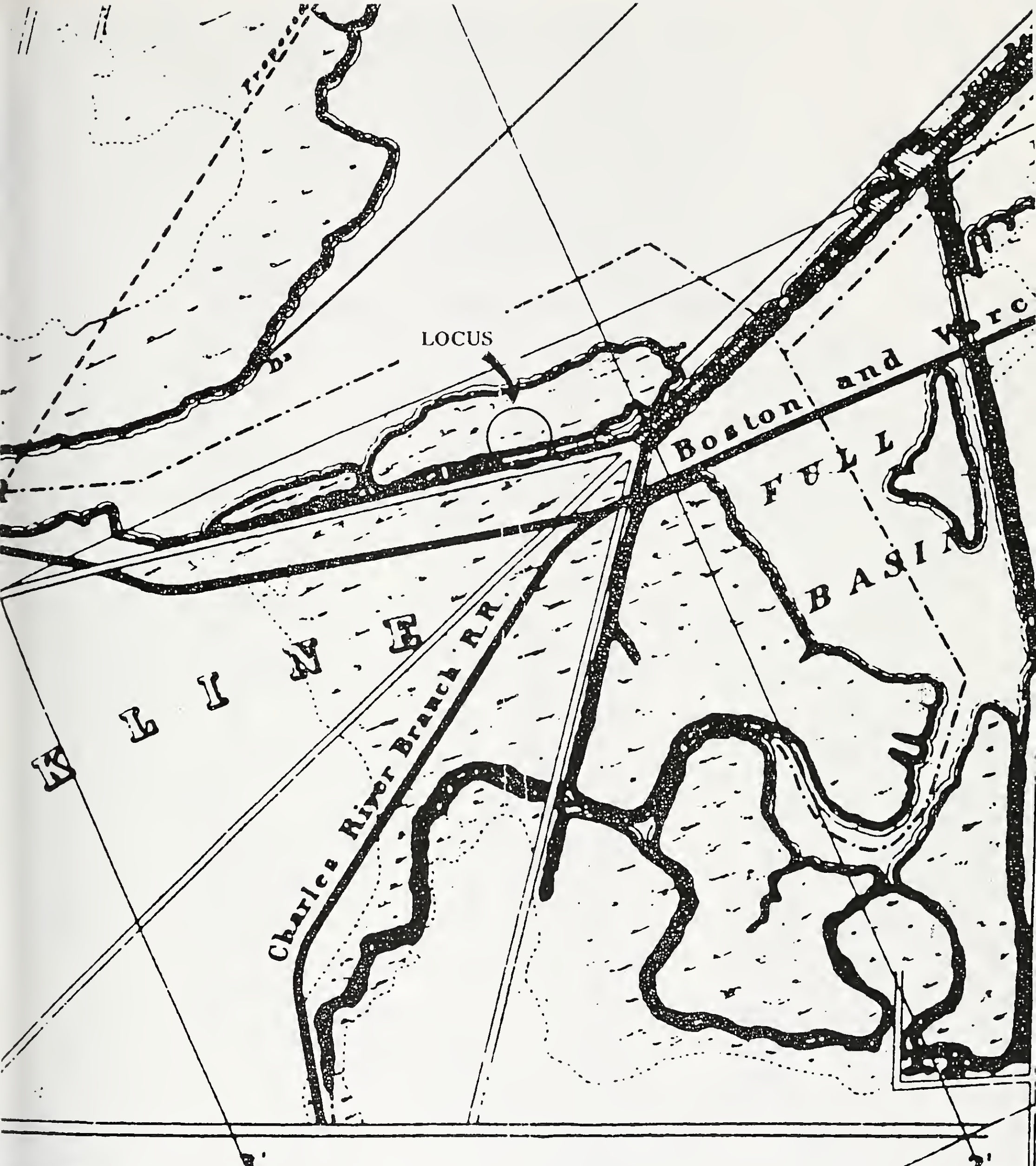
None listed or mapped.



SCHOOL OF MANAGEMENT - HISTORIC RESOURCES

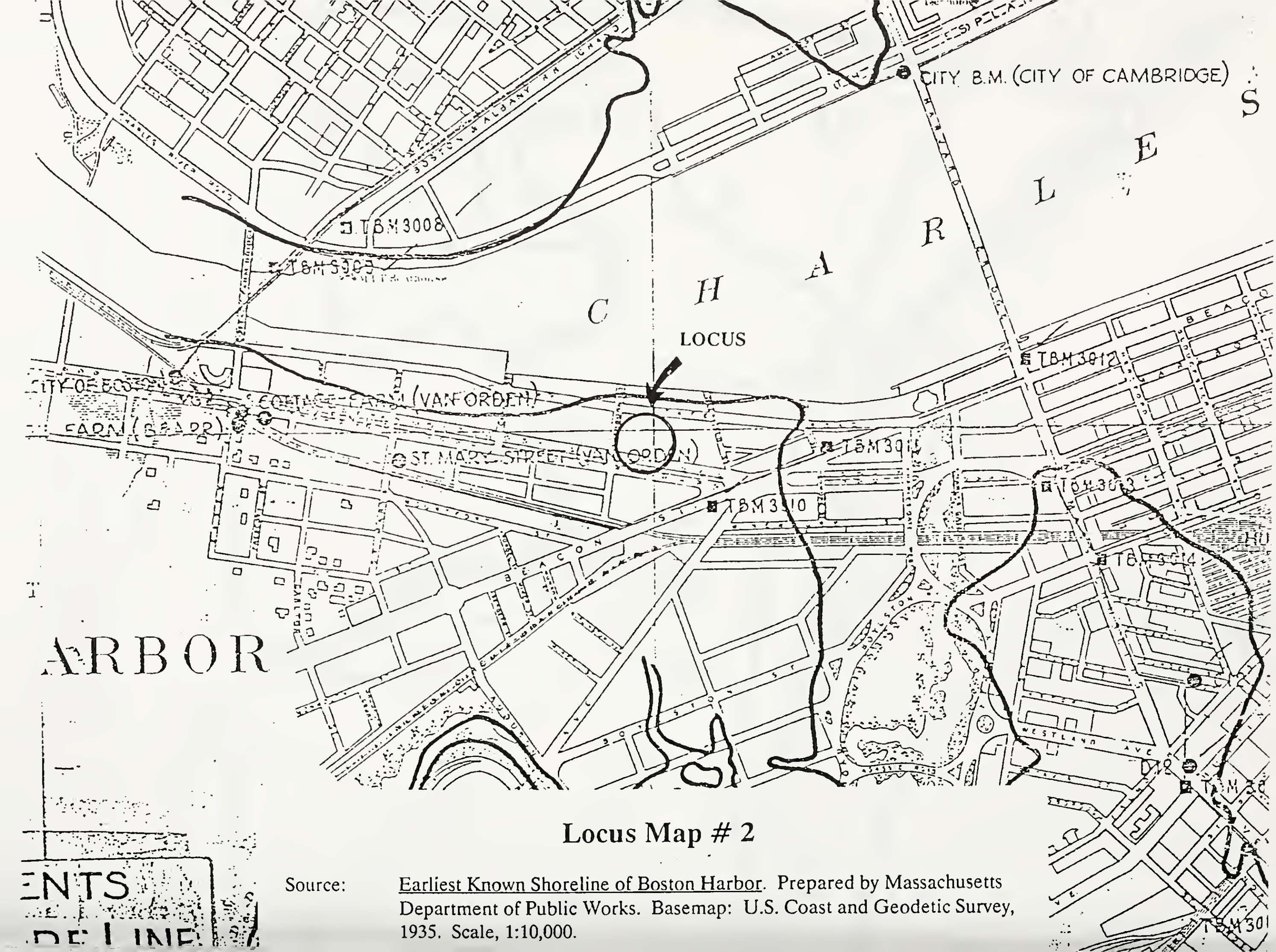
ATTACHMENT F

HISTORIC TIDELANDS JURISDICTION



Locus Map # 1

Source: Map of Boston Harbor Showing Commissioners' Lines, Wharves, &c. E. S. Chesbrough, 1852. Twice original scale, 1:10,200.



Locus Map # 2

Source: Earliest Known Shoreline of Boston Harbor. Prepared by Massachusetts Department of Public Works. Basemap: U.S. Coast and Geodetic Survey, 1935. Scale, 1:10,000.

ATTACHMENT G

SOLID WASTE AND HAZARDOUS MATERIALS

Solid and Hazardous Materials

An environmental assessment for the proposed project area has been compiled. A review of the Boston Fire Prevention Bureau records and the state Department of Environmental Protection (DEP) files has been conducted. The portion of the site formerly occupied by a gas station with subsurface oil tanks (599 - 601 Commonwealth Avenue) is currently listed by DEP as a "Location To Be Investigated" (LTBI). In March and April of 1987, 10 underground fuel tanks were removed from the site and approximately 3,676 cubic yards of soil contaminated with petroleum products were removed and replaced with clean fill. The companies of Goldberg-Zoino & Associates and Groundwater Technology, Inc. monitored the tank removal and soil excavation activities. All known underground storage tanks have reportedly been removed from the project site. The only remaining potential on-site source of contamination is anticipated to be the fill material beneath the former service station and to the north.

Samples were taken from the test borings and observation wells installed on the site in late December 1991 and January 1992 by Haley & Aldrich. Analyses of these samples are completed. The test results indicate low levels of petroleum/oil contamination.

Based on the results of analyses, an Excavated Soils and Materials Management Plan will be developed for construction activities and excavated soil will be disposed of in accordance with state regulations.

The new School of Management building will be designed to accommodate paper and other solid waste recycling programs instituted by the University.

ATTACHMENT H

PROJECT IMPACT REPORT SCOPE

BOSTON
REDEVELOPMENT
AUTHORITY

Raymond L. Flynn
Mayor

Clarence J. Jones
Chairman

Paul L. Barrett
Director

One City Hall Square
Boston, MA 02201
TEL (617) 722-4300
FAX (617) 367-5916

October 27, 1992

Mr. Paul Rinaldi, Director
Office of Space Management
Boston University
25 Buick Street
Boston, MA 02215

RE: School of Management Project

Dear Mr. Rinaldi:

Please find enclosed the Scoping Determination for the Boston University School of Management Project. The Scoping Determination describes information required by the Boston Redevelopment Authority in response to the Project Notification Form which you submitted on August 25, 1992 pursuant to Article 31 of the Boston Zoning Code.

Additional information may be required during the course of review of the project. If you have any questions regarding the Scoping Determination or the review process, please contact me at 722-4300.

We look forward to working with you toward the successful completion of the Project.

Sincerely,

Beverly E. Johnson

Beverly E. Johnson
Assistant Director for Institutional
Planning and Development

Boston Redevelopment Authority is an Equal Opportunity/Affirmative Action Employer • Equal Housing Opportunity

BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT PROJECT

SUBMISSION REQUIREMENTS FOR DRAFT PROJECT IMPACT REPORT (DPIR)

PROPOSED PROJECT:	Boston University: School of Management Project
PROJECT LOCATION:	595 Commonwealth Avenue, Boston, MA, 02215
APPLICANT:	Boston University
PNF SUBMISSION DATE:	August 25, 1992

The Boston Redevelopment Authority ("BRA") is issuing this Scoping Determination pursuant to Section 31-5 of the Boston Zoning Code (the "Code"). The applicant filed a Project Notification Form ("PNF") on August 25, 1992. The Scoping Determination requests information required by the BRA for its review of the Proposed Project in connection with the following:

1. Development Review pursuant to Article 31 of the Code;

2. Recommendations to the Board of Appeal with respect to the zoning relief for the Proposed Project, pursuant to Articles 6 and 7 of the Code, and to the Boston Zoning Commission with respect to the Development Plan for the Planned Development Area (PDA) pursuant to Article 3 of the Code;

3. Approval of a Development Impact Project (DIP) Plan, pursuant to Article 26A of the Code, and the agreements for the Development Impact Project Contribution and Jobs Contribution Grant, pursuant to Articles 26A and 26B of the Code; and

4. Review of the project in the context of the Boston University Master Plan 1986-1996 which was approved March 26, 1987.

PREAMBLE

The BRA is reviewing the Proposed Project pursuant to multiple sections of the Code. The Proposed Project is being reviewed pursuant to Article 31, Development Review Requirements, which sets out a comprehensive procedure for project review and requires the BRA to review the design, transportation, environmental, and other impacts of proposed projects. Article 31 requires the submission of a satisfactory Final Project Impact Report ("FPIR") prior to the issuance of a building permit.

The applicant's submittals indicate the Proposed Project requires zoning relief pursuant to Articles 6 and 7 of the Code. Development Impact Project Plan approval pursuant to Articles 26A and 26B of the Code and approval by the Boston Redevelopment Authority and the Boston Zoning Commission of the PDA Plan. In order to be granted each type of zoning relief, a different set of criteria must be satisfied.

The Proposed Project requires exceptions under Article 6A for the following deviations from the Code:

- University Use
- Parapet Setbacks
- Floor Area Ratio
- Rear Yard Dimensions
- Off-Street Loading

Conditions for approval of exceptions are outlined in Section 6A-3 of the Code.

The Proposed Project also requires DIP Plan approval pursuant to Articles 26A, Development Impact Projects - Housing, and 26B, Development Impacts - Job Training. Prior to receiving the zoning relief listed above, the Applicant must meet DIP requirements pursuant to Sections 26A-3 and 26B-3 of the Code. These requirements include that the BRA approve the DIP Plan after a public hearing and that the applicant enter into a DIP Plan Agreement with the BRA.

In conjunction with the zoning relief needed, a determination regarding the project's consistency with the applicant's Master Plan will be made.

Boston University (the University) proposes to construct an $80 million new School of Management and administration center on the Charles River Campus at 595 Commonwealth Avenue. The project will include a building containing approximately 360,000 square feet of gross floor area devoted to academic and administrative uses plus approximately 270 parking spaces in three levels below grade. The academic space will serve to consolidate and upgrade the existing Boston University School of Management including classrooms, computer rooms, an auditorium, a library, academic offices, and supporting cafeteria and lounges. The administration center will serve to consolidate University offices on campus. The site is currently used as parking for Boston University employees.

Currently, the School's enrollment is nearly 3,400 graduate and undergraduate students with over 112 full-time faculty and 81 part-time faculty. The need for added space is not only created by expanded programs over the years, but also by the changes in teaching techniques and facilities. In addition to the need for classrooms, there is a demand for smaller case-study rooms, computer rooms, a periodical library, as well as informal lounge and meeting areas.

The project site is currently used as surface parking for 181 cars and contains two small wooden parking attendant booths. The site also contains a small landscaped area at the southwest corner. The site is rectangularly shaped and approximately 46,950 square feet in size. The site is located near the Kenmore Square area of Boston. It is bounded by a Howard Johnson's Motor Lodge to the east, a University residence hall to the north, Commonwealth Avenue to the south, and Sherborn Street to the west. The buildings in the area contain a mix of commercial, academic, and residential uses. The site is adjacent to the Bay State Road - Back Bay West Historic District to the north. The majority of buildings along this section of Bay Sate Road are owned by Boston University.

The proposed Boston University School of Management building will contain approximately 360,000 square feet of gross floor area with an approximately 38,000 square foot footprint. The building will be 10 stories high, or approximately 160 feet, plus a mechanical penthouse of approximately 23 feet. The building program includes 270 parking spaces in three levels below grade. The Floor Area Ratio (FAR) of the project will be approximately 7.7. The building includes an internal atrium in the core of the building.

The building will contain approximately 260,000 square of gross floor area for the new School of Management. These new facilities will serve approximately 3,400 graduate and undergraduate students with an approximately 400-seat auditorium, classrooms, seminar/conference and case-study rooms, computer labs, an approximately 310-seat periodical library, office space for School of Management faculty and research institutes, and a 170-seat canteen. The school will occupy the first six floors of the building.

The remaining floors, seven through ten, will house approximately 100,000 square feet of gross floor area devoted to executive and central administration offices, and an approximately 120-seat executive dining room.

II. BOSTON UNIVERSITY MASTER PLAN

Boston University has prepared an institutional master plan for the period 1986-1996. The plan was approved by the Boston Redevelopment Authority on March 29, 1987. The Master Plan includes enrollment projections, analyzes housing, parking, academic and recreational needs, and studies potential sites to accommodate the changing needs of the University.

The Project is proposed for a site which is identified in the Master Plan as Site Q. The master plan suggests that a portion of Site Q would be used for a 120,000 square foot building to house the School of Management and at the same time, the Master Plan identifies Site I as the location for consolidating university administrative functions. The Project, as proposed, raises questions as to its conformance to the Master Plan.

The Draft Project Impact Report should address this issue in some detail so that there is a clear understanding of all of the changes on campus that would result from the project. Presentation of this information may include reasons why the size of the School of Management has increased so significantly, why central administrative functions have been relocated and identification of other changes that will result in the Master Plan due to the proposed Project. A description should also be provided regarding how the space currently used by functions to be moved to the new building will be used. The numerical and percentage increase in the size of the campus resulting from the project should be indicated.

III. COMMUNITY REVIEW OF THE PROPOSED PROJECT

The proponent should provide a description of the intended community review process. The description should include the names of neighborhood groups and/or individuals who will be involved, the nature of their role, and a generalized schedule of the process.

IV. DEVELOPMENT REVIEW REQUIREMENTS - ARTICLE 31

SUBMISSION REQUIREMENTS

In addition to full-size scale drawings, 15 copies of a bound booklet containing all submission materials reduced to size 8-1/2" x 11", except where otherwise specified, are required. The booklet should be printed on both sides of the page. In addition, an adequate number of copies must be available for community review. Included in the submission materials should be a copy of this Scoping Determination for review.

A. GENERAL INFORMATION

1. Applicant Information

- a. Development Team
  - (1) Names
    - (a) Developer (including description of development entity and type of corporation)
    - (b) Attorney
    - (c) Project consultants
  - (2) Business address and telephone number for each
  - (3) Designated contact for each
- b. Legal Information
  - (1) Legal judgments or actions pending concerning the Proposed Project
  - (2) History of tax arrears on property owned in Boston by the Applicant
  - (3) Evidence of site control over the project area, including current ownership and purchase options of all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the proponent's right or ability to accomplish the Proposed Project and the nature of the agreements for securing parcels not owned by the Applicant.
  - (4) Nature and extent of any and all public easements into, through, or surrounding the site.

2. Financial Information (See Appendix 1 for required financial information, which may be submitted under separate cover)

A Development Pro Forma must be provided for the Proposed Project.

- a. Full disclosure of financing references
- b. Development Pro Forma

3. Project Area

   a. An area map identifying the location of the Proposed Project

   b. Description of metes and bounds of project area or certified survey of project area

4. Public Benefits

   a. Existing and estimated future annual taxes

   b. Anticipated employment levels including the following:

      (1) Estimated number of construction jobs
      (2) Estimated number of permanent jobs

   c. Other public benefits, if any, to be provided

5. Regulatory Controls and Permits

   a. Existing zoning requirements, zoning computation forms, and any anticipated requests for zoning relief should be explained.

   b. Anticipated permits required from other local, state, and federal entities with a proposed application schedule should be noted.

   c. A statement on the applicability of the Massachusetts Environmental Policy Act (MEPA) should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BRA, including, but not limited to, copies of the Environmental Notification Form and the proposed schedule for coordination with BRA procedure.

6. Community Groups

   a. Names and addresses of project area owners, abutters, and also any community or business groups which, in the opinion of the applicant, may be substantially interested in or affected by the Proposed Project.

B. TRANSPORTATION COMPONENT

A Transportation Access Plan shall be prepared as defined by the Scope of Services outlined in Appendix 2.

C. ENVIRONMENTAL PROTECTION COMPONENT

1. Wind

A qualitative analysis of the potential wind impacts of the proposed project at the pedestrian level shall be required for the Draft Project Impact Report. This analysis shall determine potential pedestrian level winds adjacent to and in the vicinity of the project site and shall identify any areas where wind velocities are expected to exceed acceptable levels, including the Authority's guideline of an effective gust velocity of 31 mph not to be exceeded more than 1% of the time.

Areas of interest for the analysis shall include public and other areas of pedestrian use, including, but not limited to, entrances to the project building, sidewalks adjacent to and in the vicinity of the project building, the landscaped area along Sherborn Street, and other pedestrian areas in the project vicinity.

For areas where wind speeds are projected to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impact shall be identified.

Should the qualitative analysis indicate the possibility of excessive pedestrian level wind speeds, additional studies, including wind tunnel testing, may be required for the Final Impact Report.

2. Shadow

A shadow analysis shall be required for existing and build conditions for the hours 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. It should be noted that due to time differences (daylight savings vs. standard), the autumnal equinox shadows would not be the same as the vernal equinox shadows and therefore separate shadow studies are required for the vernal and autumnal equinoxes.

The shadow impact analysis must include net new shadow as well as existing shadow and must clearly show the incremental impact of the proposed building.

Particular attention shall be given to existing or proposed public open spaces and major pedestrian areas, including, but not limited to, the sidewalks adjacent to and in the vicinity of the proposed project, pedestrian areas and landscaped areas in the project vicinity, and the Charles River parkland.

Design or other mitigation measures to limit or avoid any adverse shadow impact shall be identified.

3. Daylight Analysis

A daylight analysis is required, taking at least two viewpoints. One viewpoint should be taken from Commonwealth Avenue, centered on the building facade, and the second should be taken from Sherborn Street, again centered on the corresponding facade. Comparison should be made to values for either the existing zoning "envelope" for the site, or structures of comparable size in the area. (A comparison to downtown values is not appropriate.) The BRADA program must be used.

4. Air Quality

A description of the parking garage exhaust system, including location of intake and exhaust vents and specifications, and an analysis of the impact on pedestrian level air quality from operation of the exhaust systems shall be required. Measures to avoid any violation of air quality standards shall be described.

An analysis of the potential emission of pollutants from any space heating facilities of the proposed project and a description of measures to minimize the emission of pollutants also shall be included in the EIR. Required State permits for on-site boilers shall be described.

5. Solid and Hazardous Wastes

The generation of solid wastes (construction period and operation of the project) and plans for removal and disposal shall be described. In addition, measures to promote the reduction of waste generation and recycling, particularly for paper and other recyclable products, shall be described in the DPIR.

An environmental site assessment for the proposed project area has been completed. This assessment indicated the presence of low levels of petroleum/oil contamination. The assessment shall be included as an appendix of the DPIR and a summary of the assessment and its results shall be presented in the main text. Remediation measures to ensure the safe removal and disposal of the contaminated soils shall be described.

6. Noise

An analysis of the potential noise impacts from the project's mechanical and exhaust systems and compliance with applicable regulations of the City of Boston shall be required. A description of the project's mechanical and exhaust systems and their location shall be included. Measures to minimize and eliminate adverse noise impacts on nearby sensitive receptors shall be described.

7. Geotechnical Impact

An analysis of existing sub-soil conditions, groundwater levels, potential for ground movement and settlement during excavation and pile driving (if proposed), and potential impact on adjacent buildings and utility lines shall be required. This analysis shall also include a description of the foundation construction methodology, the amount and method of excavation, disposal of the excavate, and measures to prevent any adverse effects on adjacent buildings and utility lines.

Measures to ensure that groundwater levels will not be lowered during or after construction also shall be described.

8. Construction Impacts

A construction impact analysis shall include a description and evaluation of the following:

(1) potential dust and pollutant emissions and mitigation measures to control these emissions.

(2) potential noise impact and mitigation measures to minimize increase in noise levels.

(3) location of construction staging areas and construction worker parking.

(4) construction schedule, including hours of construction activity.

(5) access routes for construction trucks and anticipated volume of construction truck traffic.

(6) generation and disposal of construction debris.

(7) potential for the recycling of excavated asphalt from the existing surface parking lot.

(8) impact of project construction on rodent populations and description of the proposed rodent control program, including frequency of

application and compliance with applicable City and State regulatory requirements.

(9) measures to protect the public safety.

D. URBAN DESIGN COMPONENT

The Project proposes to develop the site to a density of FAR 7.5 nearly twice the current zoning FAR of 4. Although the PNF states that the size, facade materials and building design will remain compatible with other commercial and institutional buildings along this portion of Commonwealth Avenue, the Proposed Project appears to be of a height and density that exceeds the massing of existing buildings. The urban design component must provide massing studies including context elevations as well as perspective views along Commonwealth Avenue at street level, and from the Charles River and Kenmore Square. In addition, the following urban design objectives must be addressed in the Draft Project Impact Report.

- The building massing should relate to adjacent open spaces and view corridors, particularly the park directly across from Commonwealth Avenue.
- The building mass should emphasize the sense of human scale through familiar building sizes, modules, and facade organization and articulated entryways, reinforcing both the Ralph Cram neo-gothic building and the traditional brick town houses and apartment buildings situated along the Avenue.

In order to determine that the Proposed Project is (a) architecturally compatible with surrounding structures; (b) exhibits an architectural concept that enhances the urban design features of the Boston University campus; (c) augments the quality of the visual and pedestrian environment; and (d) is consistent with the design guidelines established in the Boston University Master Plan, the following items must be submitted:

1. A written description of program elements and space allocation for each element.
2. A table showing the gross floor area, floor by floor and totals, of the proposed building.
3. A plan of the surrounding area at an appropriate scale (1" = 40' or larger) showing relationships of the Proposed Project to the district with regard to:
    a. building footprint

    b. building height

    c. open space

    d. major topographic features

    e. pedestrian and vehicular circulation routes and entry points

    f. land use

4. Site sections at 1" = 40' or larger showing relationships of the Proposed Project to adjacent buildings and spaces.

5. Black and white 8"x10" photographs of the site and neighborhood.

6. An eye-level perspective (reproducible line drawings) showing the proposal in the context of the surrounding area

7. Aerial views of the project in the context of the surrounding area.

8. Sketches, diagrams, and photographs where relevant, to clarify design issues and massing.

9. A site plan at an appropriate scale (1" = 40' or larger) showing:

    a. specific relationships of the Proposed Project to existing adjacent buildings, streets and open space

    b. general location of pedestrian ways, driveways, parking, service areas, streets, and major landscape features

    c. pedestrian, handicapped, vehicular and service access and flow through the parcel and to adjacent areas

    d. survey information, such as existing elevations, benchmarks, and utilities and

    e. construction limits

10. Massing models at 1" = 40'.

11. Elevations, sections, and plans at 1"-16' showing building entrances and programming.

12. Proposed schedule for submittal of design development materials.

Submission materials for Design Development and Contract Documents submissions can be found in Appendix 3.

E. HISTORIC RESOURCES COMPONENT

The proposed project site is located adjacent to the Bay State Road-Back Bay West Historic District, a National Register historic district, and in the vicinity of a number of other National and State designated historic properties and districts. Across Commonwealth Avenue from the site is the University's Morse Auditorium, the former Temple Adath Israel and a City of Boston landmark. The historic resources analysis shall assess the potential impacts of the proposed project's height, scale, massing, architectural design, and other relevant environmental factors (including shadow) on the historic districts and properties in the vicinity of the proposed development. The DPIR also must assess the potential presence of any archaeological resources which may be disturbed by the construction of the proposed project. Prior consultation with the City of Boston archaeologist (Mr. Steven Pendery, 635-3850) is advised.

F. INFRASTRUCTURE SYSTEMS COMPONENT

An infrastructure impact analysis must be performed. The discussion of Proposed Project impacts on infrastructure systems should be organized system-by-system as suggested below. The applicant's submission must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical communications (including telephone, fire alarm, computer, cable, etc.) utility systems, and the need reasonably attributable to the proposed project for additional systems facilities.

Any system upgrading or connection requiring a significant public or utility investment, creating a significant disruption in vehicular or pedestrian circulation, or affecting any public or neighborhood park or streetscape improvements, comprises an impact which must be mitigated. The DPIR must describe anticipated impacts in this regard, including specific mitigation measures, and must include nearby Proposed Project buildout figures in the analysis.

In the case of the School of Management project, particular consideration should be given to the location and configuration of connections, separation of storm drain and sanitary sewer systems, and construction dewatering impacts.

The Proposed Project must also address relocation of, and improvements or terminations to, any active utility lines which cross or enter the site.

1. Water and Sewer Systems

The Water and Sewer Systems Analysis must include the following:

a. Estimated water consumption and sewerage generation from the Proposed Project and the basis for each estimate. Include separate calculations for air conditioning system make-up water.

b. Description of the capacity and adequacy of water and sewer systems and an evaluation of the impacts of the Proposed Project on those systems. This evaluation should take into account the age of the system components adjacent to the site.

c. Identification of measures to conserve resources, including any provisions for recycling.

d. Description of the Proposed Project's impacts on the water quality of the Charles River or other water bodies that could be affected by the project. Include the impact of on-site storm drainage on water quality. Description of mitigation measures to reduce or eliminate impacts on water quality.

e. Detail methods of protection proposed for BWSC sewer lines and water mains during construction.

f. Brief description of fire protection system and connections.

Sewer systems and stormwater systems must be separated if possible; utilization of combined systems should be avoided. Some expansion of the material in the PNF on this matter is suggested. Thorough analysis and continuing discussions with BWSC are required.

Water supply systems adjacent to the project and servicing the project should be looped so as to minimize public hazard or inconvenience in the event of a main break.

2. Energy Systems

The Energy Systems Analysis must include the following:

a. Description of energy requirements of the project and evaluation of project impacts on resources and supply. Information is required regarding Boston Edison's ability to supply electrical energy for project needs.

b. Description of measures to conserve energy usage and consideration of the feasibility of including solar energy provisions or other on-site energy provisions.

c. Detail the energy source of the interior space heating; how obtained, and, if applicable, plans for reuse of condensate.

d. Brief description of emergency power capabilities.

The location of transformer and other vaults required for electrical distribution or ventilation must be chosen to minimize disruption to pedestrian paths and public improvements both when operating normally and when being serviced, and must be described.

3. Other systems should be included in similar analyses if applicable: gas, steam, telephone, cable, fiberoptic communications, etc.

Appendix 1

REQUIRED FINANCIAL INFORMATION

REQUIRED FINANCIAL INFORMATION
BOSTON UNIVERSITY
SCHOOL OF MANAGEMENT

DEVELOPMENT PRO FORMA includes all the information normally found in a development pro forma, by phase. This includes, but is not limited to:

- Land costs, per land square foot and total, by parcel, including any incremental disposition cost attributed to the project.
- Attribution of acquisition expense over project components (per FAR square foot retail, office, parking, etc.)
- All hard costs on a per-unit and total basis (disaggregated into base building, tenant improvement work, site work, furniture, fixtures and equipment, FF&E, etc.)
- All soft costs on a per-unit and total basis, (disaggregated into individual line items such as architectural, engineering, legal, accounting, and developer's fees, and any other professional fees, insurance, permits, etc.)
- All contingencies, on a per-unit and total basis, by phase (specify whether contingency is on hard costs, soft cost, or total cost).
- All assumptions regarding financing terms on acquisition, pre-development, construction and permanent loans, by phase (including financing fees, interest rates, drawdown assumptions, terms, participations, amortization).
- Any other project-related expenses not within any of the above categories.
- Calculation of Total Development Cost (TDC) by component, including total and per unit breakdown (e.g., per square foot office, retail, parking, etc.).
- Sources of debt and equity for total project costs.
- Projected financing sources, including bond issuing agencies such as HEFA or MIFA, banks, institutional investors, private, corporate or government donors (an analysis of the costs versus benefits of the financing options, including interest costs and loan terms, as well as a comparison between available sources, should be included).

Appendix 2

TRANSPORTATION ACCESS PLAN
SCOPE OF SERVICES

DRAFT

DRAFT

BOSTON UNIVERSITY SCHOOL OF MANAGEMENT

ACCESS PLAN SCOPE

SCOPE OF WORK

The developer must evaluate the transportation impacts associated with the proposed project. The results of this evaluation will be documented in an Access Plan prepared for submission to the Boston Transportation Department (BTD). The report will include the following:

- A definition of existing traffic, transit, and parking conditions.
- An evaluation of the project's long-term impacts on traffic, transit and pedestrian activities as well as on parking demand.
- An evaluation of the project's short-term traffic impacts related to construction activity.
- Identification of appropriate measures to mitigate project impacts, including long-term project impact monitoring.

In the preparation of the Access Plan, use should be made of all available existing studies and data.

STUDY AREA

The following intersections will be studied:

a. Commonwealth Ave./Beacon St./Brookline Ave.
b. Commonwealth Ave./Sherborn St.

DEFINITION OF TASKS

Task 1. Description of Existing Transportation Conditions

The Existing Conditions component will present data on the various transportation systems within the study area, and will provide measures of levels of service, available capacity and other analysis as appropriate to identify any current deficiencies in those systems.

1.1 Traffic. Available traffic volume counts will be supplemented with new counts, as necessary. Based on data gathered from all sources, a preliminary base traffic volume network will be developed to represent existing morning, evening and weekend peak hour conditions.

Vehicle trip generation characteristics of existing land uses at the project site will be determined by survey.

Capacity analysis will be performed to determine level of service at study area intersections.

1.2 Parking. Public parking supply within walking distance of the project site will be defined. The parking inventory will distinguish between on-street (metered and unregulated) and off-street (commercial) spaces. Availability of public spaces will be determined by reference to published sources such as the BTD's 1987 Downtown Parking Inventory Study, supplemented and updated as necessary with survey data.

The existing parking plan for the site will be presented. The inventory of existing on-site parking spaces will include: number of spaces; occupation of spaces by user type, hour of peak occupancy, and turnover rate; rates charged for use; location of any high-occupancy vehicle spaces.

1.3 Transit. The operating characteristics of the area's private bus carrier services and Massachusetts Bay Transportation Authority (MBTA) services will be documented.

1.4 Pedestrians. Pedestrian conditions on sidewalks and intersections adjacent to the site will be described. Describe major pedestrian corridors to and pathways within the site. Estimate volumes of pedestrians using same. Describe conditions of corridors, including any deficiencies or barriers.

Pedestrian counts will be taken at the following crossings and sidewalk locations:

a. Commonwealth Ave./Sherborn St.

Task 2. Evaluation of Long-Term Transportation Impacts

The traffic impacts of the proposed development will be analyzed in detail. Expected long-term transportation conditions in the study area will be estimated and evaluated. Impacts of traffic generated by the project will be analyzed in detail and presented in comparison with existing conditions.

2.1 Trip Generation. The proposed uses of the site will be evaluated to determine the project's person-trip generation characteristics, which will be translated into vehicle trips by use of modal split and vehicle occupancy assumptions consistent with those used for other previously submitted Access Plans, or otherwise as approved by the BTD. Trip origins will be assigned to appropriate locations on the site (i.e., driveways for the garage as opposed to existing parking lot curb cuts).

For the purpose of site trip generation, the trips generated by the proposed School of Management building will be added to those generated by the underground parking garage spaces whose use is not associated with the School of Management building, i.e., those spaces whose use is preserved from the existing condition. Vehicle trip ends generated by the School of Management Building which cannot be accommodated in the project garage will be assigned to other parking facilities as appropriate.

2.2 Trip Distribution. As with trip generation, trip distribution should be performed specifically for the project site. Estimations should be made of the probable origin of trips to the site. Trip distribution is most appropriately described in terms of corridor of origin, e.g. Northwest, Southeast, etc.

2.3 Conditions to be Analyzed. In addition to existing conditions, the following future conditions will be analyzed at the Study Intersections:

a. Full-Build (with the addition of project-related impacts).

The Build scenario must show the AM and PM peak hour levels of service at the Study Intersections under each of the roadway alternatives examined.

2.4 Evaluation of Transportation Impacts. New trips expected to be attracted to the proposed development will be added to demands carried by the existing roadway system. Morning and evening peak hour and daily increases will be developed and analyzed for all travel modes.

2.4.1 Traffic Impacts. Volume-to-capacity ratio (v/c), level of service (LOS) and delay calculations at, and queue lengths between, the study intersections.

2.4.2 Site Circulation. A detailed site plan will be provided, showing proposed location of all vehicular and pedestrian access, drop-off or valet service locations, taxi waiting areas, delivery points, and internal pedestrian circulation.

2.4.3 Transit. The usage of public transportation will be described, and the impact of the project on transit services.

2.4.4 Pedestrian Impacts. Pedestrian volumes generated by the project will be presented. Future volumes will be projected for the locations and crossings identified in section 1.4. Indicate impact of new pedestrian trips on pedestrian conditions and amenities.

2.4.5 Trucks and Service Vehicles. Truck and service vehicle traffic to the site will estimated. Access and egress for emergency vehicles will also be evaluated.

2.5 Parking Impacts. Demand for parking generated by the proposed project will be calculated. Parking supply will be identified, for faculty, students and staff. Parking operations will be described in detail.

2.5.1 Parking demand generated by project by use, both long-term and short-term. On the basis of the traffic volumes projected in section 2.1 above, and using appropriate turnover rates, estimate project-generated parking demand in horizon year. Indicate user type (faculty, student, staff).

2.5.2 Proposed management plan for parking facilities. Use of parking supply will be detailed. Rates for spaces will be given, including for employees, seminar/conference attendees, Red Sox patrons, and others. Method of allocating and terms (e.g., monthly) of granting parking will be discussed.

2.5.3 Existing off-site spaces which proposed on-site parking facilities will replace will be identified. New uses to which those replaced spaces will be put will also be identified, in terms of users, hours of use, etc.

2.5.4 A plan will be provided of all parking facilities, including layout, access, and size of spaces.

3. Evaluation of Short-Term Impacts (Construction Period)

The transportation assessment will evaluate the impacts of the project during the construction period, including: mode of arrival for construction workers; parking provisions for construction workers and construction materials deliveries; frequency, times and routes of truck movements and construction materials deliveries; temporary storage of construction equipment and materials; the need for full or partial street closures or street occupancy during construction will be defined.

4. Development of Mitigation Measures

Programs or strategies to reduce the transportation impacts will be developed and may include the following:

- Measures to minimize vehicle-trip generation.
- Roadway/traffic operation improvements.
- Transit improvements.
- Parking management improvements.
- Pedestrian improvements.
- Long-term project impact monitoring.

Appendix 3

SUBMISSION REQUIREMENTS FOR DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS SUBMISSIONS

Phase II Submission: Design Development

1. Written description of the Proposed Project.

2. Site sections.

3. Site plan showing:

    a. Relationship of the proposed buildings and open space and existing adjacent buildings, open spaces, streets, and buildings and open spaces across streets.

    b. Proposed site improvements and amenities including paving, landscaping, and street furniture.

    c. Building and site dimensions, including setbacks and other dimensions subject to zoning requirements.

4. Dimensional drawings at an appropriate scale (e.g., 1" = 8') developed from approved schematic design drawings which reflect the impact of proposed structural and mechanical systems on the appearance of exterior facades, interior public spaces, and roofscape including:

    a. Building plans

    b. Preliminary structural drawings

    c. Preliminary mechanical drawings

    d. Sections

    e. Elevations showing the Proposed Project in the context of the surrounding area as required by the Authority to illustrate relationships or character, scale and materials.

5. Large-scale (e.g., 3/4" = 1'-10") typical exterior wall sections, elevations and details sufficient to describe specific architectural components and methods of their assembly.

6. Outline specifications of all materials for site improvements, exterior facades, roofscape, and interior public spaces.

7. Eye-level perspective drawings showing the Proposed Project in the context of the surrounding area.

8. Samples of all proposed exterior materials.

9. Complete photo documentation (35 mm color slides) of above components including major changes from initial submission to the Proposed Project approval.

Phase III Submission: Contract Documents

1. Final written description of the Proposed Project.

2. A site plan showing all site development and landscape details for lighting, paving, planting, street furniture, utilities, grading, drainage, access, service, and parking.

3. Complete architectural and engineering drawings and specifications.

4. Full-size assemblies (at the project site) of exterior materials and details of construction.

5. Eye-level perspective drawings or presentation model that accurately represents the Proposed Project, and a rendered site plan showing all adjacent existing and proposed structures, streets and site improvements.

6. Site and building plan at 1" - 100' for Authority's use in updating its 1" = 100" photogrammetric map sheets.

Phase IV Submission: Construction Inspection

1. All contract addenda, proposed change orders, and other modifications and revisions of approved contract documents which affect site improvements, exterior facades, roofscape, and interior public spaces shall be submitted to the BRA prior to taking effect.

2. Shop drawings of architectural components which differ from or were not fully described in contract documents.

ATTACHMENT I

DISTRIBUTION LIST

DISTRIBUTION LIST

Ms. Susan Tierney, Secretary (2 copies--page one, two and topo)
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Department of Environmental Protection
One Winter Street
Boston, MA 02108

DEP/Northeast Regional Office
10 Commerce Way
Woburn, MA 01801

State Clearinghouse
E.O.C.D.
100 Cambridge Street
14th Floor
Boston, MA 02202

Judith McDonough, Executive Director
Massachusetts Historical Commission
80 Boylston Street
Boston, MA 02116

Owen Donnelly
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Ms. Katina Belezos
Massachusetts Water Resources Authority
100 First Street
Charlestown Navy Yard
Charlestown, MA 02129

Environmental Coordinator
M.B.T.A.
10 Park Plaza, 6th Floor
Boston, MA 02116

District Highway Manager
Massachusetts Highway Department
District 8
400 D Street
South Boston, MA 02108

Metropolitan Area Planning Council
60 Temple Place
Boston, MA 02111

Mr. Bryan Glasscock
Boston Air Pollution Control Commission
Environment Department
One City Hall Square
Boston, MA 02201

Boston Landmarks Commission
One City Hall Square
Boston, MA 02201

Mr. Richard Mertens
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Ms. Libby Blank
Boston Water & Sewer Commission
425 Summer Street
Boston, MA 02210

Mr. Andrew McClurg
Boston Transportation Department
City of Boston
One City Hall Square
Boston, MA 02201

Mr. Joseph Casazza, Commissioner
Department of Public Works
Room 714
One City Hall Square
Boston, MA 02201

Mr. Paul Barrett
Director
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Mr. Gerard Kavanaugh
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Ms. Lorraine Downey, Director
The Environment Department
One City Hall Square
Boston, MA 02201

Boston Conservation Commission
Room 805
Boston City Hall
One City Hall Square
Boston, MA 02201

Project Review Coordinator
Coastal Zone Management
100 Cambridge Street
Boston, MA 02202

Project Review Coordinator
Massachusetts Division of Marine Fisheries
100 Cambridge Street
Boston, MA 02202

Health Education Finance Authority
99 Summer Street
Boston, MA 02110-1240

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, 02202

WILLIAM F. WELD
GOVERNOR
ARGEO PAUL CELLUCCI
LIEUTENANT GOVERNOR
SUSAN F. TIERNEY
SECRETARY

(617) 727-9800

December 9, 1992

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Boston University School of Management
PROJECT LOCATION : Boston
EOEA NUMBER : 9202
PROJECT PROPONENT : Boston University
DATE NOTICED IN MONITOR : November 9, 1992

Pursuant to the Massachusetts Environmental Policy Act (G. L., c. 30, s. 61-62H) and Sections 11.04 and 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that the above project requires the preparation of an Environmental Impact Report.

The project involves the construction of a new ten story, 360,000 s.f. building at 595 Commonwealth Avenue. It will house the School of Management (260,000 s.f.) and administrative functions (100,000 s.f.) and 270 parking spaces in three levels below grade. The site is currently used as surface parking for 181 cars.

The project is subject to development review pursuant to Article 31 of the Boston Zoning Code. The MEPA Regulations at 301 CMR 11.13 provide a "Special Provision for Coordinated Review of Project Subject to both MEPA and BRA Review." The MEPA and BRA reviews shall be carried out in a coordinated fashion, and the environmental issues shall be addressed in a single document.

On October 27, 1992, the BRA issued its Scoping Determination for the Boston University School of Management Project. I herein adopt the BRA Scoping Determination as an appropriate scope for MEPA purposes, and will add some additional comments on certain environmental issues below.

As a procedural matter, the document shall be circulated according to the MEPA Regulations at 301 CMR 11.24. It shall

100% RECYCLED PAPER

also be circulated to those who commented on the ENF. The document can be called a Project Impact Report/Environmental Impact Report (PIR/EIR). Copies of MEPA correspondence should be included in the document. In addition, a copies of the Scoping Determination and this Certificate should also be included in the document.

Scope Issues

The BRA Scoping Determination was comprehensive, and as noted above, shall serve as an appropriate scope for MEPA purposes. The BRA Scoping included the following environmental issues:

- Transportation Access Plan (including traffic, parking, transit and pedestrians)
- Wind Analysis
- Shadow Analysis
- Daylight Analysis
- Air Quality Analysis
- Solid And Hazardous Waste Analysis
- Noise Analysis
- Geotechnical Impact Analysis
- Construction Impact Analysis
- Urban Design Analysis
- Historic Resources Analysis (including archaeological impacts)
- Infrastructure Systems Analysis (water, sewer, energy, etc.)

In addition to these issues, the PIR/EIR shall address the following:

Comments

The PIR/EIR should address the comments received on the ENF.

Air Quality

This project is categorically included pursuant to the MEPA regulations at 301 CMR 11.19. Categorical Inclusion thresholds under MEPA are determined by ITE trip generation rates, prior to reductions for mode splits, pass by trips and the like. A transportation air quality analysis will therefore also be required for mobile sources. Both microscale and mesoscale analysis is required. Consultation with DEP Air Quality Staff is advised.

Traffic

In addition to the study area identified in the BRA Scoping Determination, the traffic analysis should included an analysis of any addition impacts at the BU Bridge, consistent with the EIR for the Commonwealth Armory.

Urban Design/Alternatives

In the BU Master Plan (approved by the BRA on March 29, 1987) this site was proposed for a 120,000 s.f. building. The Scoping Determination points out that the project, as now proposed, raises questions about conformance with the Master Plan. The PIR/EIR should address the BRA's concerns about conformance with the Master Plan. In addition, in certain environmental subject areas, the PIR/EIR should analyze the lesser scale alternative for comparison and for purposes of minimizing impacts. These subject areas specifically include the Urban Design Components, Wind, Shadow, Historic Impacts and transportation.

December 9, 1992
DATE

Susan F. Tierney, Secretary

Comments:
BRA
BWSC
City of Boston Environment Department
MWRA
DEP/Northeast
MBTA
MHC
Councillor D. Scondras
Councillor R. Salerno
Councillor B. McLaughlin
Kenmore Residents Association
Kenmore Association, Inc.
Bay State Road Civic Association
M. Kasdon
Y. Homsy
E. H. Scott
L. Kluge

SFT/JMD/jmd

BOSTON
REDEVELOPMENT
AUTHORITY

Raymond L. Flynn
Mayor

Clarence J. Jones
Chairman

Paul L. Barrett
Director

One City Hall Square
Boston, MA 02201
TEL (617) 722-4300
FAX (617) 367-5916

October 27, 1992

Mr. Paul Rinaldi, Director
Office of Space Management
Boston University
25 Buick Street
Boston, MA 02215

RE: School of Management Project

Dear Mr. Rinaldi:

Please find enclosed the Scoping Determination for the Boston University School of Management Project. The Scoping Determination describes information required by the Boston Redevelopment Authority in response to the Project Notification Form which you submitted on August 25, 1992 pursuant to Article 31 of the Boston Zoning Code.

Additional information may be required during the course of review of the project. If you have any questions regarding the Scoping Determination or the review process, please contact me at 722-4300.

We look forward to working with you toward the successful completion of the Project.

Sincerely,

Beverly E. Johnson

Beverly E. Johnson
Assistant Director for Institutional
Planning and Development

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BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

BOSTON UNIVERSITY

SCHOOL OF MANAGEMENT PROJECT

SUBMISSION REQUIREMENTS FOR DRAFT PROJECT IMPACT REPORT (DPIR)

PROPOSED PROJECT:	Boston University: School of Management Project
PROJECT LOCATION:	595 Commonwealth Avenue, Boston, MA, 02215
APPLICANT:	Boston University
PNF SUBMISSION DATE:	August 25, 1992

The Boston Redevelopment Authority ("BRA") is issuing this Scoping Determination pursuant to Section 31-5 of the Boston Zoning Code (the "Code"). The applicant filed a Project Notification Form ("PNF") on August 25, 1992. The Scoping Determination requests information required by the BRA for its review of the Proposed Project in connection with the following:

1. Development Review pursuant to Article 31 of the Code;

2. Recommendations to the Board of Appeal with respect to the zoning relief for the Proposed Project, pursuant to Articles 6 and 7 of the Code, and to the Boston Zoning Commission with respect to the Development Plan for the Planned Development Area (PDA) pursuant to Article 3 of the Code;

3. Approval of a Development Impact Project (DIP) Plan, pursuant to Article 26A of the Code, and the agreements for the Development Impact Project Contribution and Jobs Contribution Grant, pursuant to Articles 26A and 26B of the Code; and

4. Review of the project in the context of the Boston University Master Plan 1986-1996 which was approved March 26, 1987.

PREAMBLE

The BRA is reviewing the Proposed Project pursuant to multiple sections of the Code. The Proposed Project is being reviewed pursuant to Article 31, Development Review Requirements, which sets out a comprehensive procedure for project review and requires the BRA to review the design, transportation, environmental, and other impacts of proposed projects. Article 31 requires the submission of a satisfactory Final Project Impact Report ("FPIR") prior to the issuance of a building permit.

The applicant's submittals indicate the Proposed Project requires zoning relief pursuant to Articles 6 and 7 of the Code. Development Impact Project Plan approval pursuant to Articles 26A and 26B of the Code and approval by the Boston Redevelopment Authority and the Boston Zoning Commission of the PDA Plan. In order to be granted each type of zoning relief, a different set of criteria must be satisfied.

The Proposed Project requires exceptions under Article 6A for the following deviations from the Code:

- University Use
- Parapet Setbacks
- Floor Area Ratio
- Rear Yard Dimensions
- Off-Street Loading

Conditions for approval of exceptions are outlined in Section 6A-3 of the Code.

The Proposed Project also requires DIP Plan approval pursuant to Articles 26A, Development Impact Projects - Housing, and 26B, Development Impacts - Job Training. Prior to receiving the zoning relief listed above, the Applicant must meet DIP requirements pursuant to Sections 26A-3 and 26B-3 of the Code. These requirements include that the BRA approve the DIP Plan after a public hearing and that the applicant enter into a DIP Plan Agreement with the BRA.

In conjunction with the zoning relief needed, a determination regarding the project's consistency with the applicant's Master Plan will be made.

Boston University (the University) proposes to construct an $80 million new School of Management and administration center on the Charles River Campus at 595 Commonwealth Avenue. The project will include a building containing approximately 360,000 square feet of gross floor area devoted to academic and administrative uses plus approximately 270 parking spaces in three levels below grade. The academic space will serve to consolidate and upgrade the existing Boston University School of Management including classrooms, computer rooms, an auditorium, a library, academic offices, and supporting cafeteria and lounges. The administration center will serve to consolidate University offices on campus. The site is currently used as parking for Boston University employees.

Currently, the School's enrollment is nearly 3,400 graduate and undergraduate students with over 112 full-time faculty and 81 part-time faculty. The need for added space is not only created by expanded programs over the years, but also by the changes in teaching techniques and facilities. In addition to the need for classrooms, there is a demand for smaller case-study rooms, computer rooms, a periodical library, as well as informal lounge and meeting areas.

The project site is currently used as surface parking for 181 cars and contains two small wooden parking attendant booths. The site also contains a small landscaped area at the southwest corner. The site is rectangularly shaped and approximately 46,950 square feet in size. The site is located near the Kenmore Square area of Boston. It is bounded by a Howard Johnson's Motor Lodge to the east, a University residence hall to the north, Commonwealth Avenue to the south, and Sherborn Street to the west. The buildings in the area contain a mix of commercial, academic, and residential uses. The site is adjacent to the Bay State Road - Back Bay West Historic District to the north. The majority of buildings along this section of Bay Sate Road are owned by Boston University.

The proposed Boston University School of Management building will contain approximately 360,000 square feet of gross floor area with an approximately 38,000 square foot footprint. The building will be 10 stories high, or approximately 160 feet, plus a mechanical penthouse of approximately 23 feet. The building program includes 270 parking spaces in three levels below grade. The Floor Area Ratio (FAR) of the project will be approximately 7.7. The building includes an internal atrium in the core of the building.

The building will contain approximately 260,000 square of gross floor area for the new School of Management. These new facilities will serve approximately 3,400 graduate and undergraduate students with an approximately 400-seat auditorium, classrooms, seminar/conference and case-study rooms, computer labs, an approximately 310-seat periodical library, office space for School of Management faculty and research institutes, and a 170-seat canteen. The school will occupy the first six floors of the building.

The remaining floors, seven through ten, will house approximately 100,000 square feet of gross floor area devoted to executive and central administration offices, and an approximately 120-seat executive dining room.

II. BOSTON UNIVERSITY MASTER PLAN

Boston University has prepared an institutional master plan for the period 1986-1996. The plan was approved by the Boston Redevelopment Authority on March 29, 1987. The Master Plan includes enrollment projections, analyzes housing, parking, academic and recreational needs, and studies potential sites to accommodate the changing needs of the University.

The Project is proposed for a site which is identified in the Master Plan as Site Q. The master plan suggests that a portion of Site Q would be used for a 120,000 square foot building to house the School of Management and at the same time, the Master Plan identifies Site I as the location for consolidating university administrative functions. The Project, as proposed, raises questions as to its conformance to the Master Plan.

The Draft Project Impact Report should address this issue in some detail so that there is a clear understanding of all of the changes on campus that would result from the project. Presentation of this information may include reasons why the size of the School of Management has increased so significantly, why central administrative functions have been relocated and identification of other changes that will result in the Master Plan due to the proposed Project. A description should also be provided regarding how the space currently used by functions to be moved to the new building will be used. The numerical and percentage increase in the size of the campus resulting from the project should be indicated.

III. COMMUNITY REVIEW OF THE PROPOSED PROJECT

The proponent should provide a description of the intended community review process. The description should include the names of neighborhood groups and/or individuals who will be involved, the nature of their role, and a generalized schedule of the process.

IV. DEVELOPMENT REVIEW REQUIREMENTS - ARTICLE 31

SUBMISSION REQUIREMENTS

In addition to full-size scale drawings, 15 copies of a bound booklet containing all submission materials reduced to size 8-1/2" x 11", except where otherwise specified, are required. The booklet should be printed on both sides of the page. In addition, an adequate number of copies must be available for community review. Included in the submission materials should be a copy of this Scoping Determination for review.

A. GENERAL INFORMATION

1. Applicant Information

a. Development Team

(1) Names

(a) Developer (including description of development entity and type of corporation)

(b) Attorney

(c) Project consultants

(2) Business address and telephone number for each

(3) Designated contact for each

b. Legal Information

(1) Legal judgments or actions pending concerning the Proposed Project

(2) History of tax arrears on property owned in Boston by the Applicant

(3) Evidence of site control over the project area, including current ownership and purchase options of all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the proponent's right or ability to accomplish the Proposed Project and the nature of the agreements for securing parcels not owned by the Applicant.

(4) Nature and extent of any and all public easements into, through, or surrounding the site.

2. Financial Information (See Appendix 1 for required financial information, which may be submitted under separate cover)

A Development Pro Forma must be provided for the Proposed Project.

a. Full disclosure of financing references

b. Development Pro Forma

3. Project Area

   a. An area map identifying the location of the Proposed Project

   b. Description of metes and bounds of project area or certified survey of project area

4. Public Benefits

   a. Existing and estimated future annual taxes

   b. Anticipated employment levels including the following:

      (1) Estimated number of construction jobs
      (2) Estimated number of permanent jobs

   c. Other public benefits, if any, to be provided

5. Regulatory Controls and Permits

   a. Existing zoning requirements, zoning computation forms, and any anticipated requests for zoning relief should be explained.

   b. Anticipated permits required from other local, state, and federal entities with a proposed application schedule should be noted.

   c. A statement on the applicability of the Massachusetts Environmental Policy Act (MEPA) should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BRA, including, but not limited to, copies of the Environmental Notification Form and the proposed schedule for coordination with BRA procedure.

6. Community Groups

   a. Names and addresses of project area owners, abutters, and also any community or business groups which, in the opinion of the applicant, may be substantially interested in or affected by the Proposed Project.

B. TRANSPORTATION COMPONENT

A Transportation Access Plan shall be prepared as defined by the Scope of Services outlined in Appendix 2.

C. ENVIRONMENTAL PROTECTION COMPONENT

1. Wind

A qualitative analysis of the potential wind impacts of the proposed project at the pedestrian level shall be required for the Draft Project Impact Report. This analysis shall determine potential pedestrian level winds adjacent to and in the vicinity of the project site and shall identify any areas where wind velocities are expected to exceed acceptable levels, including the Authority's guideline of an effective gust velocity of 31 mph not to be exceeded more than 1% of the time.

Areas of interest for the analysis shall include public and other areas of pedestrian use, including, but not limited to, entrances to the project building, sidewalks adjacent to and in the vicinity of the project building, the landscaped area along Sherbom Street, and other pedestrian areas in the project vicinity.

For areas where wind speeds are projected to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impact shall be identified.

Should the qualitative analysis indicate the possibility of excessive pedestrian level wind speeds, additional studies, including wind tunnel testing, may be required for the Final Impact Report.

2. Shadow

A shadow analysis shall be required for existing and build conditions for the hours 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. It should be noted that due to time differences (daylight savings vs. standard), the autumnal equinox shadows would not be the same as the vernal equinox shadows and therefore separate shadow studies are required for the vernal and autumnal equinoxes.

The shadow impact analysis must include net new shadow as well as existing shadow and must clearly show the incremental impact of the proposed building.

Particular attention shall be given to existing or proposed public open spaces and major pedestrian areas, including, but not limited to, the sidewalks adjacent to and in the vicinity of the proposed project, pedestrian areas and landscaped areas in the project vicinity, and the Charles River parkland.

Design or other mitigation measures to limit or avoid any adverse shadow impact shall be identified.

3. Daylight Analysis

A daylight analysis is required, taking at least two viewpoints. One viewpoint should be taken from Commonwealth Avenue, centered on the building facade, and the second should be taken from Sherborn Street, again centered on the corresponding facade. Comparison should be made to values for either the existing zoning "envelope" for the site, or structures of comparable size in the area. (A comparison to downtown values is not appropriate.) The BRADA program must be used.

4. Air Quality

A description of the parking garage exhaust system, including location of intake and exhaust vents and specifications, and an analysis of the impact on pedestrian level air quality from operation of the exhaust systems shall be required. Measures to avoid any violation of air quality standards shall be described.

An analysis of the potential emission of pollutants from any space heating facilities of the proposed project and a description of measures to minimize the emission of pollutants also shall be included in the EIR. Required State permits for on-site boilers shall be described.

5. Solid and Hazardous Wastes

The generation of solid wastes (construction period and operation of the project) and plans for removal and disposal shall be described. In addition, measures to promote the reduction of waste generation and recycling, particularly for paper and other recyclable products, shall be described in the DPIR.

An environmental site assessment for the proposed project area has been completed. This assessment indicated the presence of low levels of petroleum/oil contamination. The assessment shall be included as an appendix of the DPIR and a summary of the assessment and its results shall be presented in the main text. Remediation measures to ensure the safe removal and disposal of the contaminated soils shall be described.

6. Noise

An analysis of the potential noise impacts from the project's mechanical and exhaust systems and compliance with applicable regulations of the City of Boston shall be required. A description of the project's mechanical and exhaust systems and their location shall be included. Measures to minimize and eliminate adverse noise impacts on nearby sensitive receptors shall be described.

7. Geotechnical Impact

An analysis of existing sub-soil conditions, groundwater levels, potential for ground movement and settlement during excavation and pile driving (if proposed), and potential impact on adjacent buildings and utility lines shall be required. This analysis shall also include a description of the foundation construction methodology, the amount and method of excavation, disposal of the excavate, and measures to prevent any adverse effects on adjacent buildings and utility lines.

Measures to ensure that groundwater levels will not be lowered during or after construction also shall be described.

8. Construction Impacts

A construction impact analysis shall include a description and evaluation of the following:

(1) potential dust and pollutant emissions and mitigation measures to control these emissions.

(2) potential noise impact and mitigation measures to minimize increase in noise levels.

(3) location of construction staging areas and construction worker parking.

(4) construction schedule, including hours of construction activity.

(5) access routes for construction trucks and anticipated volume of construction truck traffic.

(6) generation and disposal of construction debris.

(7) potential for the recycling of excavated asphalt from the existing surface parking lot.

(8) impact of project construction on rodent populations and description of the proposed rodent control program, including frequency of

application and compliance with applicable City and State regulatory requirements.

(9) measures to protect the public safety.

D. URBAN DESIGN COMPONENT

The Project proposes to develop the site to a density of FAR 7.5 nearly twice the current zoning FAR of 4. Although the PNF states that the size, facade materials and building design will remain compatible with other commercial and institutional buildings along this portion of Commonwealth Avenue, the Proposed Project appears to be of a height and density that exceeds the massing of existing buildings. The urban design component must provide massing studies including context elevations as well as perspective views along Commonwealth Avenue at street level, and from the Charles River and Kenmore Square. In addition, the following urban design objectives must be addressed in the Draft Project Impact Report.

- The building massing should relate to adjacent open spaces and view corridors, particularly the park directly across from Commonwealth Avenue.
- The building mass should emphasize the sense of human scale through familiar building sizes, modules, and facade organization and articulated entryways, reinforcing both the Ralph Cram neo-gothic building and the traditional brick town houses and apartment buildings situated along the Avenue.

In order to determine that the Proposed Project is (a) architecturally compatible with surrounding structures; (b) exhibits an architectural concept that enhances the urban design features of the Boston University campus; (c) augments the quality of the visual and pedestrian environment; and (d) is consistent with the design guidelines established in the Boston University Master Plan, the following items must be submitted:

1. A written description of program elements and space allocation for each element.
2. A table showing the gross floor area, floor by floor and totals, of the proposed building.
3. A plan of the surrounding area at an appropriate scale (1" = 40' or larger) showing relationships of the Proposed Project to the district with regard to:

    a. building footprint

   - b. building height
   - c. open space
   - d. major topographic features
   - e. pedestrian and vehicular circulation routes and entry points
   - f. land use

4. Site sections at 1" = 40' or larger showing relationships of the Proposed Project to adjacent buildings and spaces.

5. Black and white 8"x10" photographs of the site and neighborhood.

6. An eye-level perspective (reproducible line drawings) showing the proposal in the context of the surrounding area

7. Aerial views of the project in the context of the surrounding area.

8. Sketches, diagrams, and photographs where relevant, to clarify design issues and massing.

9. A site plan at an appropriate scale (1" = 40' or larger) showing:
   - a. specific relationships of the Proposed Project to existing adjacent buildings, streets and open space
   - b. general location of pedestrian ways, driveways, parking, service areas, streets, and major landscape features
   - c. pedestrian, handicapped, vehicular and service access and flow through the parcel and to adjacent areas
   - d. survey information, such as existing elevations, benchmarks, and utilities and
   - e. construction limits

10. Massing models at 1" = 40'.

11. Elevations, sections, and plans at 1"-16' showing building entrances and programming.

12. Proposed schedule for submittal of design development materials.

Submission materials for Design Development and Contract Documents submissions can be found in Appendix 3.

E. HISTORIC RESOURCES COMPONENT

The proposed project site is located adjacent to the Bay State Road-Back Bay West Historic District, a National Register historic district, and in the vicinity of a number of other National and State designated historic properties and districts. Across Commonwealth Avenue from the site is the University's Morse Auditorium, the former Temple Adath Israel and a City of Boston landmark. The historic resources analysis shall assess the potential impacts of the proposed project's height, scale, massing, architectural design, and other relevant environmental factors (including shadow) on the historic districts and properties in the vicinity of the proposed development. The DPIR also must assess the potential presence of any archaeological resources which may be disturbed by the construction of the proposed project. Prior consultation with the City of Boston archaeologist (Mr. Steven Pendery, 635-3850) is advised.

F. INFRASTRUCTURE SYSTEMS COMPONENT

An infrastructure impact analysis must be performed. The discussion of Proposed Project impacts on infrastructure systems should be organized system-by-system as suggested below. The applicant's submission must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical communications (including telephone, fire alarm, computer, cable, etc.) utility systems, and the need reasonably attributable to the proposed project for additional systems facilities.

Any system upgrading or connection requiring a significant public or utility investment, creating a significant disruption in vehicular or pedestrian circulation, or affecting any public or neighborhood park or streetscape improvements, comprises an impact which must be mitigated. The DPIR must describe anticipated impacts in this regard, including specific mitigation measures, and must include nearby Proposed Project buildout figures in the analysis.

In the case of the School of Management project, particular consideration should be given to the location and configuration of connections, separation of storm drain and sanitary sewer systems, and construction dewatering impacts.

The Proposed Project must also address relocation of, and improvements or terminations to, any active utility lines which cross or enter the site.

1. Water and Sewer Systems

The Water and Sewer Systems Analysis must include the following:

a. Estimated water consumption and sewerage generation from the Proposed Project and the basis for each estimate. Include separate calculations for air conditioning system make-up water.

b. Description of the capacity and adequacy of water and sewer systems and an evaluation of the impacts of the Proposed Project on those systems. This evaluation should take into account the age of the system components adjacent to the site.

c. Identification of measures to conserve resources, including any provisions for recycling.

d. Description of the Proposed Project's impacts on the water quality of the Charles River or other water bodies that could be affected by the project. Include the impact of on-site storm drainage on water quality. Description of mitigation measures to reduce or eliminate impacts on water quality.

e. Detail methods of protection proposed for BWSC sewer lines and water mains during construction.

f. Brief description of fire protection system and connections.

Sewer systems and stormwater systems must be separated if possible; utilization of combined systems should be avoided. Some expansion of the material in the PNF on this matter is suggested. Thorough analysis and continuing discussions with BWSC are required.

Water supply systems adjacent to the project and servicing the project should be looped so as to minimize public hazard or inconvenience in the event of a main break.

2. Energy Systems

The Energy Systems Analysis must include the following:

a. Description of energy requirements of the project and evaluation of project impacts on resources and supply. Information is required regarding Boston Edison's ability to supply electrical energy for project needs.

b. Description of measures to conserve energy usage and consideration of the feasibility of including solar energy provisions or other on-site energy provisions.

c. Detail the energy source of the interior space heating; how obtained, and, if applicable, plans for reuse of condensate.

d. Brief description of emergency power capabilities.

The location of transformer and other vaults required for electrical distribution or ventilation must be chosen to minimize disruption to pedestrian paths and public improvements both when operating normally and when being serviced, and must be described.

3. Other systems should be included in similar analyses if applicable: gas, steam, telephone, cable, fiberoptic communications, etc.

Appendix 2

TRANSPORTATION ACCESS PLAN SCOPE OF SERVICES

DRAFT

DRAFT

BOSTON UNIVERSITY SCHOOL OF MANAGEMENT

ACCESS PLAN SCOPE

SCOPE OF WORK

The developer must evaluate the transportation impacts associated with the proposed project. The results of this evaluation will be documented in an Access Plan prepared for submission to the Boston Transportation Department (BTD). The report will include the following:

- A definition of existing traffic, transit, and parking conditions.
- An evaluation of the project's long-term impacts on traffic, transit and pedestrian activities as well as on parking demand.
- An evaluation of the project's short-term traffic impacts related to construction activity.
- Identification of appropriate measures to mitigate project impacts, including long-term project impact monitoring.

In the preparation of the Access Plan, use should be made of all available existing studies and data.

STUDY AREA

The following intersections will be studied:

a. Commonwealth Ave./Beacon St./Brookline Ave.
b. Commonwealth Ave./Sherborn St.

DEFINITION OF TASKS

Task 1. Description of Existing Transportation Conditions

The Existing Conditions component will present data on the various transportation systems within the study area, and will provide measures of levels of service, available capacity and other analysis as appropriate to identify any current deficiencies in those systems.

1.1 Traffic. Available traffic volume counts will be supplemented with new counts, as necessary. Based on data gathered from all sources, a preliminary base traffic volume network will be developed to represent existing morning, evening and weekend peak hour conditions.

Vehicle trip generation characteristics of existing land uses at the project site will be determined by survey.

Capacity analysis will be performed to determine level of service at study area intersections.

1.2 Parking. Public parking supply within walking distance of the project site will be defined. The parking inventory will distinguish between on-street (metered and unregulated) and off-street (commercial) spaces. Availability of public spaces will be determined by reference to published sources such as the BTD's 1987 Downtown Parking Inventory Study, supplemented and updated as necessary with survey data.

The existing parking plan for the site will be presented. The inventory of existing on-site parking spaces will include: number of spaces; occupation of spaces by user type, hour of peak occupancy, and turnover rate; rates charged for use; location of any high-occupancy vehicle spaces.

1.3 Transit. The operating characteristics of the area's private bus carrier services and Massachusetts Bay Transportation Authority (MBTA) services will be documented.

1.4 Pedestrians. Pedestrian conditions on sidewalks and intersections adjacent to the site will be described. Describe major pedestrian corridors to and pathways within the site. Estimate volumes of pedestrians using same. Describe conditions of corridors, including any deficiencies or barriers.

Pedestrian counts will be taken at the following crossings and sidewalk locations:

a. Commonwealth Ave./Sherborn St.

Task 2. Evaluation of Long-Term Transportation Impacts

The traffic impacts of the proposed development will be analyzed in detail. Expected long-term transportation conditions in the study area will be estimated and evaluated. Impacts of traffic generated by the project will be analyzed in detail and presented in comparison with existing conditions.

2.1 Trip Generation. The proposed uses of the site will be evaluated to determine the project's person-trip generation characteristics, which will be translated into vehicle trips by use of modal split and vehicle occupancy assumptions consistent with those used for other previously submitted Access Plans, or otherwise as approved by the BTD. Trip origins will be assigned to appropriate locations on the site (i.e., driveways for the garage as opposed to existing parking lot curb cuts).

For the purpose of site trip generation, the trips generated by the proposed School of Management building will be added to those generated by the underground parking garage spaces whose use is not associated with the School of Management building, i.e., those spaces whose use is preserved from the existing condition. Vehicle trip ends generated by the School of Management Building which cannot be accommodated in the project garage will be assigned to other parking facilities as appropriate.

2.2 Trip Distribution. As with trip generation, trip distribution should be performed specifically for the project site. Estimations should be made of the probable origin of trips to the site. Trip distribution is most appropriately described in terms of corridor of origin, e.g. Northwest, Southeast, etc.

2.3 Conditions to be Analyzed. In addition to existing conditions, the following future conditions will be analyzed at the Study Intersections:

a. Full-Build (with the addition of project-related impacts).

The Build scenario must show the AM and PM peak hour levels of service at the Study Intersections under each of the roadway alternatives examined.

2.4 Evaluation of Transportation Impacts. New trips expected to be attracted to the proposed development will be added to demands carried by the existing roadway system. Morning and evening peak hour and daily increases will be developed and analyzed for all travel modes.

2.4.1 Traffic Impacts. Volume-to-capacity ratio (v/c), level of service (LOS) and delay calculations at, and queue lengths between, the study intersections.

2.4.2 Site Circulation. A detailed site plan will be provided, showing proposed location of all vehicular and pedestrian access, drop-off or valet service locations, taxi waiting areas, delivery points, and internal pedestrian circulation.

2.4.3 Transit. The usage of public transportation will be described, and the impact of the project on transit services.

2.4.4 Pedestrian Impacts. Pedestrian volumes generated by the project will be presented. Future volumes will be projected for the locations and crossings identified in section 1.4. Indicate impact of new pedestrian trips on pedestrian conditions and amenities.

2.4.5 Trucks and Service Vehicles. Truck and service vehicle traffic to the site will estimated. Access and egress for emergency vehicles will also be evaluated.

2.5 Parking Impacts. Demand for parking generated by the proposed project will be calculated. Parking supply will be identified, for faculty, students and staff. Parking operations will be described in detail.

2.5.1 Parking demand generated by project by use, both long-term and short-term. On the basis of the traffic volumes projected in section 2.1 above, and using appropriate turnover rates, estimate project-generated parking demand in horizon year. Indicate user type (faculty, student, staff).

2.5.2 Proposed management plan for parking facilities. Use of parking supply will be detailed. Rates for spaces will be given, including for employees, seminar/conference attendees, Red Sox patrons, and others. Method of allocating and terms (e.g., monthly) of granting parking will be discussed.

2.5.3 Existing off-site spaces which proposed on-site parking facilities will replace will be identified. New uses to which those replaced spaces will be put will also be identified, in terms of users, hours of use, etc.

2.5.4 A plan will be provided of all parking facilities, including layout, access, and size of spaces.

3. Evaluation of Short-Term Impacts (Construction Period)

The transportation assessment will evaluate the impacts of the project during the construction period, including: mode of arrival for construction workers; parking provisions for construction workers and construction materials deliveries; frequency, times and routes of truck movements and construction materials deliveries; temporary storage of construction equipment and materials; the need for full or partial street closures or street occupancy during construction will be defined.

4. Development of Mitigation Measures

Programs or strategies to reduce the transportation impacts will be developed and may include the following:

- Measures to minimize vehicle-trip generation.
- Roadway/traffic operation improvements.
- Transit improvements.
- Parking management improvements.
- Pedestrian improvements.
- Long-term project impact monitoring.

FORT POINT ASSOCIATES
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CO

January 11, 1993

Secretary Susan Tierney
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202
Attn. Janet McCabe

RE: Boston University School of Management
EOEA #9202

Dear Ms. McCabe,

I wish to express my appreciation, as well as that of Boston University, for the time you spent with us last week to review the Certificate on the Environmental Notification Form (ENF) for the School of Management project. Your explanation of the issues behind the scope and willingness to consider new information has been helpful. In response to that discussion, Boston University has reconsidered its position with regard to the utilization of Health and Educational Facilities Authority (HEFA) financing in connection with this project. As you know, HEFA financing was listed in the ENF as a potential, not proposed, funding source. Boston University is not currently eligible for additional HEFA financing. An act of Congress would be required to increase the cap on tax exempt financing in order to allow this project to be financed through HEFA. Upon reflection, Boston University considers this to be an unlikely scenario and, therefore, does not intend to pursue HEFA financing for this project.

In accordance with our recent telephone conversation, this letter shall serve as a notice of project change in accordance with 301 CMR 11.17(1) with regard to the withdrawal of HEFA financing as a state action on this project. In light of this project change, a reevaluation of the project under MEPA is requested. Absent HEFA funding, the only required state approval or permit will be the sewer connection permit from the Division of Water Pollution Control and any Massachusetts Historical Commission review related thereto. The Northeast Regional Office of the Department of Environmental Protection in their comment letter on the ENF, has indicated that no air quality permit will be required if the individual fossil fuel facilities are below the 10 million BTU/hour threshold. No permit will be required as the boilers will have separate stacks and will have an input capacity of 7.5 million BTU/hour.

Contrary to your statement in the "Air Quality" section of the Certificate on the ENF, that the project is categorically included for traffic, Boston University believes that the project is not categorically included under MEPA. The MEPA regulations, at 301 CMR 11.25 (19) state that any project generating "3000 or more new vehicle trips per day" is categorically included. As stated in the ENF, this project is a relocation of existing University uses to a single site. With the exception of the proposed use for management training seminars, there are virtually no new uses or employees which will be associated with this relocation and the projected number of new, daily vehicle trips is 228 (as detailed in Attachment C to the ENF). This analysis is based on a thorough evaluation of the number of employees, students, and visitors anticipated to use the building and historical travel patterns derived from prior Boston University surveys and studies. Most of the users of the new building will presumably continue to use the same mode of commuting as they do today and park (if they drive) in the same locations. The space which will be vacated in existing buildings will continue to be used for University functions, primarily to provide improved facilities for new laboratory space, larger faculty offices and classroom space. The University enrollment is not growing, but maintaining its current level, thus there will not be significant growth in employment or trip generation to the campus. In other words, expanded space will not lead to increased employment or trip generation. Relocation of existing programs will not lead to new traffic trips.

We have reviewed our transportation analysis for consistency with the EOEA/EOTC "Guidelines for EIR/EIS Traffic Impact Assessment." In part C, the guidelines suggest the use of ITE trip generation rates for ENF analyses. However, the guidelines state that where the sample size is prohibitively small, rates based on other empirical research should be used. The ITE Land Use code 550 for University uses is based on a limited number of studies, all of which are more than twenty years old. The manual indicates that sufficient data were not available to allow the development of satisfactory equations. Given the limitations of the data used in the ITE Manual, the age of the studies and the location of Boston University in a major urban center with five stops on a major transit line, the use of ITE rates is not useful or justified. The guidelines suggest the use of other approaches in such a situation. Appendix C to the ENF describes in detail the projected vehicle trips associated with the new building. Total vehicle trips, including both the relocated existing vehicle trips and new vehicle trips, is projected at 2,125 trips per day, well below the 3,000 trip level for categorical inclusion, even if one assumes that all trips were new trips. And, more importantly, the projected number of new vehicle trips per day is only 228.

As the ENF analysis supports the conclusion that a total of 228 new vehicle trips per day will be generated and that the total of existing and new vehicle trips per day will be 2,125, substantially below the 3,000 trip threshold, Boston University believes that the project is not categorically included for traffic.

Given the Boston University's intention not to pursue HEFA financing, and given the very limited state action needed in connection with this project, Boston University believes that an environmental impact statement should not be required. In the event that you determine the project is nevertheless categorically included, Boston University requests a waiver of the requirement to prepare an environmental impact report. In accordance with 301 CMR 11.18(2)(b), the University believes the aspects of the project which allegedly cause it to be categorically included (traffic) are not within the subject matter jurisdiction of MEPA (sewage).

I thank you for your consideration in this matter and would appreciate a response at your earliest convenience. If you require any further information or have questions, please give me a call.

Very truly yours,

Jamie M Fay

Jamie M. Fay
President

cc.
P. Rinaldi, Boston University
S. Williams, Boston University
P. Diana, Hale and Dorr
W. Schwartz, VHB

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, 02202

WILLIAM F. WELD
GOVERNOR
ARGEO PAUL CELLUCCI
LIEUTENANT GOVERNOR
SUSAN F. TIERNEY
SECRETARY

(617) 727-9800

March 19, 1993

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE NOTICE OF PROJECT CHANGE

PROJECT NAME	:Boston University School of Management (and Executive Offices)
PROJECT LOCATION	:Boston
EOEA NUMBER	:9202
PROJECT PROPONENT	:Boston University
DATE NOTICED IN MONITOR	:January 25, 1993

Pursuant to the Massachusetts Environmental Policy Act (G.L., c. 30, s. 61-62H) and Sections 11.04 and 11.06 and 11.17 of the MEPA Regulations, I hereby determine that the changes described in the Notice of Project Change are not sufficient to warrant my rescinding the December 9, 1992 determination requiring the preparation of an Environmental Impact Report.

Introduction

This Certificate summarizes the status of the MEPA environmental review process for the Boston University School of Management and Executive Offices project. It will be presented in five sections; a brief overview of the project, a discussion of the project context, a review of the environmental process to date, the requirements for the next steps under MEPA, and finally a detailed assessment of the Draft Project Impact Report (DPIR) that has been submitted by the proponent to the City of Boston - Boston Redevelopment Authority (BRA).

Project Overview

Boston University (BU) proposes to construct a School of Management and Executive Administrative Center at 595 Commonwealth Avenue in Boston. The proposal calls for the construction of a building of 366,000 s.f. The proposal is for a building of 10 stories at a finished height of 183 feet. The project will also involve three stories of subsurface excavation to provide 270 parking spaces. The first six floors will consolidate the School of Management. The upper floors will consolidate the executive administrative space. The School of Management involves 227,000 s.f. and the executive administrative offices will contain 139,200 s.f. The building footprint is 38,000 s.f.

Context

The project site is located near the Kenmore Square area at the northeast corner of Sherborn Street and Commonwealth Avenue. Currently the site, a 46,950 s.f. rectangle, is used by BU as a surface parking lot for 181 cars. The site is bounded to the east by Howard Johnson's Motor Lodge, and by a BU residence hall to the north. The site is adjacent to the Bay State Road - Back Bay West Historic District.

In February of 1987, BU published a Master Plan for the University. Several months later the Master Plan was approved by the BRA. The Master Plan proposed using a portion of "Parcel Q" for the development of a new School of Management. Parcel Q runs from Sherborn Street to Deerfield Street along Commonwealth Avenue. It also includes the block of Deerfield Street from Kenmore Square to Bay State Road. Parcel Q is an "L" shape.

The Master Plan estimated that the School of Management would be 120,000 s.f. The School of Management is one of two components of the proposed project. The School of Management itself, at 227,000 s.f., is slightly less than double the size that the Master Plan contemplated. The project as a whole, including the executive office component, exceeds the size development envisioned by the Master Plan by 300%. In addition, the Floor/Area Ratio (FAR) for the site is 4.0. The project as proposed contemplates a FAR of 7.8, almost double the density allowed by zoning.

The DPIR states that "the new School of Management offers a ten story building situated between a nine story dormitory and the ten to thirteen story buildings across Commonwealth Avenue." While this description is factual, it is misleading. Examination of Figures 3-6, 3-7, 3-8 and 3-9 clearly indicate that the proposed building is significantly taller than any of the buildings surrounding it. Although not described in the DPIR, this can be explained by the programmatic spacial needs of the building. Higher ceiling heights are needed to accommodate case study rooms, library, auditorium computer and mechanical functions. In a typical building elevation, the facade for a typical floor reads approximately ten feet (including an eight foot ceiling and several feet for structure and mechanical). This building at 183 feet, therefore, is equivalent to a building with a significantly more stories.

Review Process

The project, as proposed, requires zoning relief pursuant to Articles 6 and 7 of the City of Boston Zoning Code. The DPIR states that the proponent has "voluntarily agreed to participate in the Article 31" Development Review Process. The Article 31 process sets out a procedure for project review and requires that the BRA review the design, transportation, environmental and other impacts of the proposed project. While the Article 31 development review process does not itself apply to this project, Article 31 documentation is required for the proponent to be considered for zoning relief. In addition to zoning relief, the BRA will make a determination regarding the project's consistency with the Master Plan.

The proponent engaged the Article 31 process on August 25, 1992 by submitting a Project Notification Form (PNF). A Scoping Determination was issued by the BRA on October 27, 1992.

The project is subject to MEPA review because it is categorically included pursuant to 301 CMR 11.25(19). This provision requires an Environmental Notification Form (ENF) and an Environmental Impact Report (EIR) for any project generating over 3,000 new vehicle trips per day that requires any kind of state permit or financial assistance. The proponent filed an Environmental Notification Form (ENF) with the MEPA Unit in October, 1992. At that time, the proponent contemplated using HEFA financing. State financing confers MEPA jurisdiction to all aspects of the project. In addition, the project requires a sewer connection permit. The sewer connection permit triggers a review by the Massachusetts Historical Commission (MHC) under M.G.L., c. 9, Sections 26-27c, as amended by c. 254 of the Acts of 1988. Therefore, MEPA jurisdiction extends to water, sewer and historical and archaeological aspects of the project when based solely on permit subject matter jurisdiction.

The Secretary of Environmental Affairs issued a Certificate on the ENF on December 9, 1992. This Certificate called for the filing of a single Project Impact Report/Environmental Impact Report (PIR/EIR) in accordance with the MEPA Regulations at 301 CMR 11.13(4) which sets forth a procedure for coordinated review for projects subject to MEPA and Article 31. This procedure is meant to streamline and coordinate the review process for the proponent and the public. Additionally, this procedure allows agency concerns, both state and city, to be addressed in a comprehensive fashion.

The proponent subsequently notified the Secretary of Environmental Affairs in a Notice of Project Change of its intention not to pursue state financing for the project. The proponent also requested that the requirement for MEPA review be rescinded.

Without the state funding, MEPA jurisdiction extends only to the subject matter that is related to the state approvals sought by the proponent - water/sewer (sewer connection permit) and historic/archaeological (MHC's Ch. 254 review) issues. There are significant interests of the Commonwealth related to both of these subject areas relative to this project.

In terms of water and sewer interests, the Commonwealth is currently making a significant public investment in the clean up of Boston Harbor. All major development projects are therefore of interest as potential contributors to the wastewater collection and treatment system. With respect to historic and archaeological concerns, although the project site itself is not located in an historic district, the site is immediately adjacent to the Bay State Road/Back Bay West Architectural Conservation District. The adjacent District is a State Register property which is overseen by the MHC. In addition, the site itself is of interest to MHC due to potential archaeological resources that may be buried there. Finally, the DPIR also shows that the project as proposed will impact the Charles River Basin National Historic District, along with Storrow Drive, the Esplanade and the Charles River itself. These properties are under the stewardship of the Metropolitan District Commission (MDC).

The proponent has chosen to bifurcate the review process at this time. Specifically, BU has filed a Draft PIR with the BRA prior to receiving a decision on its request to be relieved of the EIR requirement. BU submitted the DPIR to the MEPA Unit in connection with the Notice of Project Change. Therefore, the information and analysis contained in the DPIR was considered as a part of Notice of Project Change. The comment period on the Notice of Project Change was extended to allow the public to comment on the DPIR in conjunction with the proponent's request that no MEPA review be required.

Requirement for Further MEPA Review

The proponent has requested that I rescind the EIR requirement based on the elimination of state financing through HEFA. The proponent proposes that all public environmental review take place exclusively within the Article 31 process.

Based on my review of the NPC and the DPIR, as well as the comments received, it appears that even with jurisdiction limited to permit related issues, there are significant interests of the Commonwealth that may be affected by this project. These interests warrant continued environmental review under MEPA. I found that the DPIR had only limited success in identifying and quantifying the actual impacts of the proposed development project. In general, where the DPIR actually identified impacts, they were not quantified and were presented in very general terms. The analysis was often accompanied by statements minimizing impacts which may, in fact, be significant. As a consequence, the DPIR presented no mitigation for wind, shadow, daylight or urban design issues. The analysis of water and sewer impacts was weak as well. No alternatives to the project were presented. There was no analysis of a concept that was consistent with the spirit of the Master Plan, or a development scenario which would be allowed by right under zoning. Such an analysis is a vital element as it would establish a benchmark against which impacts of the significantly larger proposed project could be evaluated.

Although the requirement for the preparation of an Environmental Impact Report shall remain in place, I recognize that MEPA jurisdiction is limited by the change in project financing. A coordinated one track review process with the BRA, as proposed in my original Certificate of December 9, 1992, is nevertheless the recommended course. The previously issued Scoping Determination of the BRA outlines a wide range of issues that continue to be germane to the MEPA jurisdiction for the project. Of the original scope, I no longer have jurisdiction over traffic and air quality issues.

The coordinated review process can proceed as follows. If the BRA finds the DPIR inadequate, then a new Supplemental PIR/DEIR can be submitted by the proponent. If the BRA finds the DPIR adequate, a DEIR can be submitted by the proponent and circulated to the BRA and others for comment. A Final PIR/EIR can be submitted by the proponent in either case, and the coordinated review process can be reestablished.

Detailed Review of the DPIR

The following discussion details findings and analysis with respect to the information prepared and presented by the project proponent in the DPIR. This analysis will focus primarily on the areas subject to MEPA jurisdiction. The transportation section will be briefly discussed as it relates to the categorical inclusion question, as well as potential impacts on the MBTA and its riders. In addition, the DPIR suggests that the site contains petroleum contamination. This raises the question of potential involvement of the DEP through the 21E process, establishing additional jurisdiction over groundwater issues.

Water and Sewer

The DPIR only minimally evaluated the water use and sanitary sewer generation of the proposed project. The EIR should evaluate the effects of adding additional flow to the sewer system, overflow potential, and the potential for undesirable waste products from the dining facilities, for example. The proponent should insure that the proposed project is consistent with MWRA and City of Boston policies concerning combined sewer separation and infiltration and inflow reduction. The proponent should conduct a hydraulic analysis of the local receiving sewer to assure sufficient capacity exists to accommodate the additional flow from this project along with other tributary flows.

Strict adherence to the Massachusetts Plumbing Code is a requirement and not a mitigation measure. The proponent should consider additional measures for water conservation such as water efficient plantings and the minimization of turf areas, water saving fixtures using 2.0 gallons per minute or less and spring loaded or timer valves. Consultation with the MWRA and BWSC is suggested.

The EIR should also consider the plan for discharge from dewatering due to excavation. The DPIR locates depth to groundwater at approximately 7 to 11 feet across the site, with groundwater flows traveling north toward the Charles River. As noted below, the site contains contaminated soil and groundwater. How will this affect any dewatering plans?

Historic and Archaeological

Impacts to historic and archeological resources resulting from the development of the proposed project can be measured by shadow analysis, daylight analysis, urban design evaluation, wind impacts evaluation, excavation/archaeological impacts and groundwater impacts evaluation.

The comments of the MHC indicate that, pursuant to 950 CMR 71.05(c), the project would constitute an "adverse effect" through the introduction of visual elements that are out of character with and will alter the setting of the adjacent State Register historic district. The comments of the MHC and the MDC also note that the project will impact the Charles River Basin National Historic District. The comments of both these agencies call for the examination of alternatives that avoid, minimize or mitigate the project impact to historic resources. The comments of these agencies, as well as the Boston Landmarks Commission, should be thoughtfully considered during the preparation of the EIR.

There are two National Register sites and five National Register eligible sites close enough to the project to be potentially affected by this development. The areas officially listed on the National Register include: the Charles River Basin Historic District and the Olmsted Park System. Those areas eligible for listing include: the Bay Sate Road Area, the Citgo Sign, Fenway Park, the Riding School, and the Audubon Circle District.

The State Register of Historic Places lists everything on the National Register, including potential listings. The Boston Landmarks Commission also lists the Bay State Road - Back Bay West Historic District, as well as a number of properties by address on Beacon Street and Commonwealth Avenue.

The DPIR did not contain a map that identified all of the National and State Register sites, or the Boston Landmarks Commission sites. The one map that was included in section 12 of the DPIR (figure 12-1) identified only the Bay State Road/Back Bay West District. Full and clear identification of the historic areas and sites in relation to the proposed project should be included in the EIR.

The shadow analysis graphics were not readable. In addition, standard architectural graphics convention for illustrating shade and shadow discourages the use of black to show shadows. Shadows are more routinely shown in varying shades of gray, because shadows are not black. The use of gray also allows the area in shadow to be identified. The use of black to illustrate the existing shadow in the DPIR overemphasized the existing shadows, while making it nearly impossible to read the graphic illustration of the new shadow relating to the proposed development. Improved graphics should be prepared that make use of standard architectural techniques for illustrating shadow impacts. The impact of the shadow on National and State Register properties, as well as MDC parkways, parklands and the Charles River should be clearly illustrated and discussed in the EIR.

The site is considered as a possible location for a prehistoric fishweir or other similar features. The proponent should continue consultation with the MHC during the preparation of the EIR regarding archaeological impacts and mitigation.

The visual analysis presented in the DPIR needs modification. Figures 12-3 through 12-7 almost all have a significant distracting features that makes meaningful evaluation difficult. For example, Figure 12-3 has a tree solidly in the middle of the illustration, as does Figure 12-5. These trees are illustrated in a manner that visually blocks or downplays significant portions of the proposed building. These graphics trips generated by this project are not "new" trips, simply relocated from many other parts of the campus. The trips are, however, new to this specific site and will result in a significant new concentration of trips at this location.

The DPIR used information contained in the 1986 Boston University Campus Parking Study to estimate trip generation of the project. MEPA policy pertaining to establishing the categorical inclusion threshold normally involves the use of unadjusted trip generation based on the Institute of Transportation Engineers (ITE) Trip Generation manual. I recognize that the data for colleges in ITE is extremely limited. The trip generation estimate using unadjusted ITE rates results in the following:

3,500 students x 2.37 trips/student[1] = 8,295 daily trips
- plus -
139,200 s.f. office space calculated using 700 employees and visitors x 3.42 trip/employee [2] = 2,394 daily trips

Therefore, the total unadjusted trip generation based on ITE for the proposed project is 10,698 daily trips. Even if the student based rate significantly overestimates the traffic being generated by that portion of the building, the total of the two uses would exceed 3,000 trips.

I note that the proponent's analysis indicates that the project will generate 4,560 "person trips" (4,560 ins and 4,560 outs). This would indicate that the trip generation, assuming one trip in and one trip out per person (unadjusted for mode split) would be in excess of 9,000 average daily trips.

The proposed project may impact the MBTA in a number of ways. The DPIR indicates that the wind impacts created by the project will have a significant impact at the "T" stop on Commonwealth Avenue. As noted above, the wind analysis was not quantitative. The wind analysis indicates that there will be an increase in wind impacts from "Moderate" to "Strong/Accelerated." The EIR should quantify the wind impacts on MBTA users and should propose and evaluate mitigation.

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[1] ITE land use code 550: students on a weekday.

[2] ITE Land Use Code 710: General Office Building Table 3: General Office Building per Employee.

In addition, the proponent should continue to work with the MBTA to address the T's concerns related to queuing onto Commonwealth Avenue, traffic operations issues in the area and safety issues relating to a new concentration of transit users at the Blandford Street stop.

Circulation

In addition to the circulation list identified in the Secretary's Certificate of December 9, 1992, the EIR should be circulated to the MDC attn: J. O'Brien and John Krajovic.

March 19, 1993
Date

Susan F Tierney
Susan F. Tierney

SFT/JMD/jmd

B.U. letter missing

Comments:
BRA
Boston Landmarks Commission
Massachusetts Historical Commission
Metropolitan District Commission
MBTA (Feb 2, 1993 and March 15, 1993)
Rosaria Salerno
David Scondras
James Byrne
Local 7 AFL - CIO
Local 12 AFL - CIO
Painters and Allied Trades
Local 17 AFL - CIO
Beta Theta Pi
Bay State Road Civic Association
Bay State Road Neighborhood Association (Feb. 10 & 18, 1993)
Audubon Circle Neighborhood Association
Allston Civic Association, Inc.
Kenmore Association, Inc.
Kenmore Community and Economic Development Corp.
Kenmore Resident Group
Boston University Community Task Force
Kenmore Tower Corp.
Y. Homsy
W. Agin
S. Samuelson
L. Megoff
B. Osborn
Laurel Kluge
R. Kingston
S. Wryn
S. Geaberg
Sara Baker
Sara Baker and others
L. Lataif
M. Kasdon
P. Steiger
S. Corn
R. Lappin and others
E. Murry
D. Heidar
W. Corbett
M. Malinowski
Petition (E. Ramson and others)

P:BUCERT

FORT POINT ASSOCIATES
M / V Chelsea
300 Congress Street
Boston, Massachusetts 02210
617 / 357-7044
FAX 617 / 357-9135

March 10, 1994

Jan Reitsma, Director
MEPA Unit
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Re: Boston University School of Management
EOEA No. 9202

Dear Mr. Reitsma:

This letter is in response to the Certificate on the Draft Environmental Impact Report for the above referenced project. Page three of the Certificate requests clarification on how the Boston Redevelopment Authority (BRA) could act on the School of Management project prior to the completion of the MEPA review and whether the BRA intends to reconsider its determination based on the information provided in the FEIR.

1. How can the BRA act on the School of Management project prior to completion of the MEPA review process?

The Boston Redevelopment Authority acts both as an Urban Renewal Agency under M.G.L. Ch.121B and as the local planning board for the City of Boston. Under 301 CMR 11.02, an "agency" subject to MEPA is defined to include any authority of a political subdivision of the Commonwealth which is specifically created as an authority under special or general laws. At the same time, municipal agencies, boards and commissions are excluded from the definition of "agency". Thus, the BRA is an "agency" for the purposes of MEPA when acting in its capacity as an Urban Renewal Agency, but is not an "agency" when carrying out its duties as the local planning board. MEPA regulations at 301 CMR 11.26(13), specifically recognize the applicability of MEPA to BRA projects when "acting as an authority". In approving the School of Management project, the BRA was functioning as the local planning board.

2. Does the BRA intend to reconsider its determination based on the information provided in the FEIR?

Due to the size and complexity of development projects commonly found within the City of Boston, the BRA has established its own environmental impact and urban design review process. Under Article 31 of the City Code, the BRA may require applicants to prepare and submit for public review and comment a Draft and Final Project Impact Report (PIR). The scoping for the PIR is not limited to subject matter jurisdiction, and thus may assess a wide variety of concerns, such as wind, shadow, views, transportation, urban design, etc. In the case of the School of Management, the project was not subject to Article 31, but Boston University nevertheless agreed to voluntarily comply with the provisions of Article 31. As a result of the extensive review and assessment of project impacts, the BRA formally approved the Draft and Final Project Impact Reports and, based in part on the analyses contained in the PIR, the BRA voted to approve the School of Management project. Although the BRA has already approved the project, the BRA will actively participate in the MEPA review process and provide comments to MEPA on the Draft and Final EIR.

While I have reviewed this letter with the BRA, you may wish to consult directly with the BRA on this issue. If I can be of any further assistance to you in this regard, please let me know.

Sincerely,

Jamie

Jamie M. Fay
President

cc. Paul Rinaldi, Boston University
Robert Donahue, Boston University
Steve Williams, Boston University
Beverly Johnson, BRA

DRAFT

MEMORANDUM OF AGREEMENT
BOSTON UNIVERSITY SCHOOL OF MANAGEMENT
595 COMMONWEALTH AVENUE, BOSTON

Whereas Boston University (University) desires to develop a new School of Management (the Project) on a 49,686 square foot parcel at 595 Commonwealth Avenue near Kenmore Square in Boston which adjoins the Bay State Road/Back Bay West Historic District (District); and

Whereas the site is currently a University owned and operated surface parking lot; and

Whereas the Massachusetts Historic Commission (MHC) has issued a finding of potential adverse effect regarding the Project's potential to introduce visual elements to the District which are out of character with the District; and

Whereas the University and MHC both agree on the importance of the integrity of the District and the value of developing and improving the existing Project site;

We therefore agree on the following conditions:

1. The University will implement a groundwater and building protection plan during construction which will include monitoring groundwater levels and soil/building movements in the District; regular reporting to MHC; and appropriate remedial actions if warranted which will protect the historic structures in the District from potential impacts associated with construction of the Project. The geotechnical plan is provided in Attachment A.

2. In order to provide additional screening from the District, the University will be responsible for providing added landscaping along 130 Bay State Road at the vacant lot (next to the Boston University dormitory) and along the Sherborn Street side of the Boston University dormitory at 140 Bay State Road. The University will also provide landscaping improvements to the yard abutting the alley, including a fence, at 114 Bay State Road prior to the completion of construction of the Project.

3. The University will commit to completing renovations of one building per year in the District over the coming three year period valued at approximately $225,000 - $400,000 each. These renovations will be in keeping with the original historic design of the buildings such as resurfacing hardwood floors, replacing missing and mismatched balustrades with those consistent with the building design, repair of wood paneling, and replacement of common area light fixtures with those representing the general architectural period of the building.

4. The University will install six interpretive plaques which provide a brief history of important buildings along Bay State Road prior to the completion of the Project.

5. As part of the Project construction, the University will replace and upgrade the existing storm drainage system and condition in the private alley between Sherborn and Deerfield Streets. The storm drainage system in the alley serves abutting historic structures in the district. The improvements will include $175,000 worth of regrading and asphalt paving of the alley and the installation of new catch basins serving the abutting historic buildings. The goal of these improvements is to reduce or eliminate flooding in historic buildings along the alley.

6. An archaeological monitoring program will be implemented during the excavation phase of the Project construction in accordance with the approved MHC permit.

Execution of this Memorandum of Agreement and implementation of its terms are evidence that Boston University consulted with the MHC pursuant to Massachusetts General Laws, Chapter 9, Sec. 26-27c, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00).

______________________________ ____________

By: Judith McDonough Date
Executive Director
Massachusetts Historical Commission

______________________________ ____________

By: Kenneth G. Condon Date
Treasurer
Boston University

BUILDING AND GROUNDWATER LEVEL PROTECTION PLAN
BU SCHOOL OF MANAGEMENT

By Haley & Aldrich, Inc.

1.0. INTRODUCTION

The existing building and groundwater protection plan discussed below is planned to be implemented during construction of the Boston University School of Management Building. This plan is part of the geotechnical instrumentation monitoring program that will be undertaken during construction. The purpose of monitoring ground movements and groundwater levels is to insure that adverse building movements and groundwater lowering do not take place that could impact adjacent foundations, especially those on timber piles.

The temporary earth support has been selected in order to provide a stiff wall system that will control ground movements and reduce groundwater seepage into the excavation. The permanent structure will be fully waterproofed to not only reduce the potential for groundwater lowering but to prevent seepage into the below-grade basement space.

2.0 GROUNDWATER MONITORING PROGRAM

The groundwater monitoring program consists of the following:

- Geotechnical instruments installed below-grade to monitor groundwater levels.
- Periodic recording of the groundwater levels in the installed instruments.
- Evaluation of measured groundwater levels.
- Remedial measures, if necessary, to maintain the area groundwater levels outside the excavation if these levels are effected by the School of Management construction activities.

The geotechnical monitoring instruments are planned to consist of up to ten observation wells that will be installed around the site, outside the excavation limits. Refer to attached Figure D1. The groundwater level in these observation wells is planned to be recorded by Haley & Aldrich prior to, and during, the School of Management construction activities. That data collected will be provided to the Massachusetts Historical Commission on a monthly basis.

It is anticipated that the groundwater level will fluctuate during construction due to numerous factors, including precipitation, water run-off in the street, unrelated construction, utilities and season. However, decrease in water level will be evaluated to assess if BU construction is the cause for the lowering, and steps will be taken to maintain the level as detailed in the Contingency Plan.

2.1 REMEDIAL ACTION PLAN OR CONTINGENCY PLAN

Construction activities should not require remedial measures. However, remedial measures will be implemented during construction if the groundwater levels are determined to be adversely lowered as a result of construction. These remedial measures might include sealing the leaking wall system and/or recharging the groundwater level outside the excavation limits. The type and extent of a recharge system, if necessary, will depend upon the magnitude of groundwater drawdown outside the excavation limits.

The existing timber pile foundations for adjacent structures based on City of Boston Department records indicate pile cut-offs at El. 5.0. Therefore, area groundwater levels during construction will be maintained above El. 5.0. Remedial measures including groundwater recharge would be instituted if groundwater levels could not be maintained above El. 6.0 for an extended period of time (approximately one month).

3.0 BUILDING MONITORING PROGRAM

The building and ground movement monitoring program consist of the following:

- Building Reference Points will be installed on adjacent structures in order to monitor building movements during construction. Periodic surveys of the reference points will be conducted.
- A pre-condition survey of adjacent buildings not owned by BU will be conducted in the area of the project. These include 120, 126, 127, 129, 135 and 137 Bay State Road.
- Inclinometers will be installed on the earth support system wall in order to monitor horizontal wall movements.
- Building crack gauges will be installed based on the pre-condition survey at existing cracks if observed.

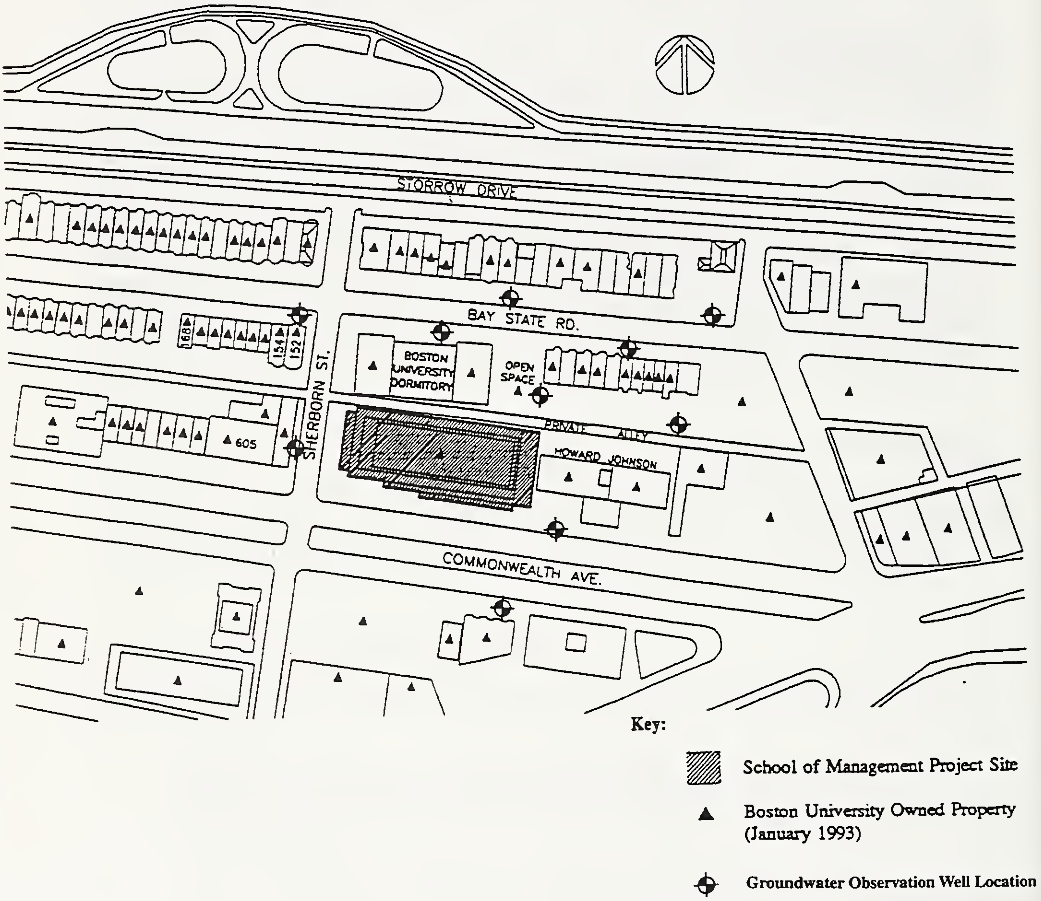
BU School of Management

The building monitoring program will provide information on the impact of basement construction on surrounding buildings.

3.1 CONTINGENCY PLAN

Based on evaluation of both horizontal and vertical movement data, an assessment of the performance of the earth support system can be conducted. If the performance is not in accordance with that which was anticipated during design, the construction sequence would be modified to reduce addition wall movements and subsequent vertical movements. These modifications might involve varying the excavation sequence to reduce the height of cut prior to brace installation. Installation of additional bracing would also be considered. This methodology of construction, referred to as the "observational approach" has been utilized on numerous projects in the Boston Area and is similar to that proposed for sections of the CAT/THT.

I:\MXH\BGPT.WPF


STORROW DRIVE
BAY STATE RD.
168
154
152
SHERBORN ST.
BOSTON UNIVERSITY DORMITORY
OPEN SPACE
PRIVATE ALLEY
HOWARD JOHNSON
605
COMMONWEALTH AVE.
Key:
School of Management Project Site
Boston University Owned Property (January 1993)
Groundwater Observation Well Location

Groundwater Observation Well Location Plan

Prepared By:
Haley & Aldrich, Inc.

Figure D1

ATTACHMENT B

Research Design for Archaeological Monitoring of Construction Activities for Boston University's Proposed School of Management Building

Submitted to:
Massachusetts Historical Commission
80 Boylston Street - Suite 310
Boston, Massachusetts 02116

Submitted by:
Office of Public Archaeology
Boston University
675 Commonwealth Avenue
Boston, Massachusetts 02215

Office
of Public
Archaeology

Boston University

March 1, 1994

Research Design for Archaeological Monitoring of Construction Activities for Boston University's Proposed School of Management Building

This proposal presents a research design for conducting archaeological monitoring of construction activities for Boston University's proposed School of Management Building in Boston, Massachusetts. The archaeological investigations will be conducted by the Office of Public Archaeology (OPA) at Boston University for Boston University's Office of Space Management in accordance with Massachusetts General Laws, Chapter 9, Sec. 26-27c, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00), and the Massachusetts Environmental Policy Act (MEPA). The archaeological monitoring is designed to determine whether any potentially significant archaeological remains are located within the parcel for the proposed School of Management building.

Previous Investigations

An archaeological reconnaissance survey of the proposed Boston University School of Management Building (BUSOM) conducted by the OPA revealed that the project area is situated over a former island of marshes and mudflats that was separated from the south bank of the Charles River by a narrow inlet (Jones and Seasholes 1993: iii). The area remained underwater, or at least was subject to tidal inundation, throughout much of the historical period until it was filled in the late 1880s. The parcel remained largely undeveloped throughout the 20th century, but a portion of it did contain a house in 1935 and later two successive gas stations with associated underground storage tanks.

Geotechnical data obtained from the site indicate the presence of historical landfill to a depth of ca. 15 ft below the surface. Below the landfill, and extending to a depth of ca. 40 ft below the surface, are undisturbed marine sediments. The Boylston Street Fishweir site, which is located approximately one mile east of the project area, contained the remains of a prehistoric fishweir in the lower levels of marine deposits at that site. Therefore, the undisturbed marine deposits at the proposed BUSOM site are considered to have potential for similar prehistoric remains.

The archaeological reconnaissance survey resulted in the recommendation of additional archaeological investigations for the project area, specifically, consisting of monitoring by professional archaeologists of construction activities at the site. It was recommended that the additional archaeological investigations be limited to the eastern 2/3 portion of the site because of the presence of contaminated soils associated with the former gas stations in the western 1/3 portion of the project area.

Construction Impacts

The proposed excavation activities will occur in three stages: pre-excavation into the fill unit along the length of the perimeter of the parcel to identify any obstructions, installation of an earth retention system (perimeter wall), and the removal of soil within the entire parcel for the construction of the garage. Each of these construction activities is described below.

Prior to the construction of the perimeter wall, obstructions that may be situated within the upper fill levels (less than ca. 10 ft in depth) will be identified by the contractor through the excavation of an exploratory trench along the perimeter of the parcel (ca. 130 by 315 ft). The perimeter support wall itself will be constructed by drilling a series of 2 ft x 6 ft holes along the perimeter of the parcel into which a concrete mixture will be poured. Once the perimeter wall is in place, the excavation of the interior portions of the parcel will be accomplished using conventional earthwork equipment, such as backhoes and front end loaders; sump pumps will be placed at various locations on the bottom of the excavation to collect water from drainage ditches during the excavation. As the excavation of the parcel proceeds, three levels of tiebacks will be installed to laterally brace the perimeter wall.

The entire perimeter support wall will be installed before excavation of the interior portions of the parcel is initiated. Once the perimeter support wall is in place, the remainder of the construction activities will proceed in the quickest, most expedient way possible, with numerous site activities proceeding simultaneously. For example, excavation activities will proceed in some areas as the tiebacks are installed in other locations. The proposed duration of the pre-excavation for the perimeter support wall is approximately three weeks; the total excavation of the parcel is expected to take approximately four months.

Potential Impacts to Archaeologically Sensitive Deposits

The pre-excavation activities to search for obstructions within the urban fill level (i.e., less than ca. 10 ft below the surface) is not expected to cause disruption to undisturbed marine deposits that are situated below the level of urban fill. The construction of the perimeter support wall will reach the base of the marine deposits, but the drilling procedures will result in only a limited displacement of soil, since much of the soil deposits will be incorporated into the concrete mixture; thus, the impact to archaeologically sensitive deposits is considered to be minimal and the potential for identifying such deposits is expected to be low because of the low amount of soil displacement.. Furthermore, the placement of the perimeter support wall must be accomplished before excavation down to significant depths—i.e., the level of undisturbed marine deposits—across the parcel can be accomplished. The subsequent excavation of the parcel will also disrupt undisturbed marine deposits situated below the level of historical fill and, because of the extent earth removal involved, the potential for impact to any archaeological remains situated within the marine deposits is considered to be high.

No archaeological monitoring is recommended for either the pre-excavation activities (the search for obstructions around the perimeter of the parcel) or the construction of the perimeter support wall. A professional archaeologist should monitor, however, all subsequent excavation activities within the parcel to identify, if present, any intact archaeological remains that may be situated within the undisturbed marine deposits down to a depth of ca. 40 ft below the surface, or the top of the stratum of marine clay.

Archaeological Monitoring Research Design

An OPA archaeologist will be on-site during all excavations within the parcel that take place after perimeter support wall has been constructed to identify any evidence of prehistoric activity that may be present in these marine deposits. Specifically, such evidence most likely would consist of wooden stakes or the remains of such that may have formed part of a fishweir or a similar fish-trapping device. The OPA archaeologist will monitor the excavation activities in order to make regular inspections of the stratigraphic profile that results from the excavation, to inspect the backfill from the trench for any evidence of cultural remains, and to record and collect any archaeological remains that are identified.

The excavation of the interior portions of the site for the parking garage will be conducted in 3 to 4 stages, each of which will consist of the excavation of a 10-ft-thick deposit of soil across the entire site. The excavation of the parcel in stages is required for the construction of 2 or 3 levels of tiebacks to support the construction perimeter wall; this sequence of excavation will also facilitate the controlled monitoring of excavation activities across the site by an OPA archaeologist to identify any evidence of prehistoric activity that may be present in these marine deposits, such as fishweir remains described above.

The general sequence of excavation and archaeological monitoring is proposed as follows. A 10-ft-thick deposit of soil will be excavated across the site, generally from the east end (adjacent to the former Howard Johnson's building) to the west end (adjacent to Sherborn Street), leaving an earthen ramp in one portion of the site for truck and other machinery access. An archaeologist will monitor the excavation of this 10-ft-thick deposit of soil across the site to determine whether any archaeological remains are present. Once this initial 10-ft-thick deposit is excavated across the site, the machinery will be moved back to the eastern end of the parcel to initiate the excavation of the next 10-ft thick level. Each subsequent 10-ft thick level of soil will be excavated in a similar manner. The excavation of each 10-ft level is expected to require about 3 weeks.

The OPA archaeologist will make regular inspections of the stratigraphic profiles that result from the excavation, to inspect the soil deposits for any evidence of cultural remains, and to record and collect any archaeological remains that are identified. Because the excavation contractor will have some flexibility concerning the timing and horizontal sequence of excavation, the monitoring archaeologist may, at his/her discretion and in consultation with the contractor, request the excavation of specific areas of the site within a given 10-ft level to further explore possible archaeological remains that may be identified or to obtain a requisite stratigraphic profile of the deposits.

For any archaeological remains that may be uncovered, an attempt will be made to identify as precisely as possible the location of the remains (i.e., depth below surface and surrounding soil matrix) prior to their removal; the stratigraphic profile will be documented through black-and-white print and color slide photography, and, if warranted, a scaled drawing. Analytical samples, such as charcoal for radiocarbon dating or samples of the associated soil matrix, may also be collected. Any cultural materials that are recovered will be collected and placed in a suitable container or protective packaging for removal to the archaeological laboratory at Boston University for processing and analysis.

In the event that cultural remains are identified, the Massachusetts Historical Commission will be notified immediately of the discovery. Meanwhile, construction excavations will proceed across the parcel so that the horizontal and vertical extent of the cultural remains can be determined. If cultural remains are identified in one area of the site, the excavation of the remainder of the 10-ft level will continue across the parcel to determine the horizontal extent of the archaeological remains. If the archaeological remains are found to be limited in their horizontal extent, the archaeological site area will be delimited by the archaeologist (using visible means such as surveyor's flagging) as off-limits to further excavation until an appropriate level of archaeological investigations for the remains is determined. Excavation across the remainder of the parcel would continue and would be monitored by the archaeologist.

Laboratory Analysis

Laboratory analysis will be performed on all cultural materials that are recovered during both the archaeological monitoring and testing phases of the project. Any artifacts that are recovered will be cleaned, identified, and cataloged. If any analytical samples (i.e., radiocarbon, soils) are obtained, these samples will be sent to appropriate laboratories for processing. An attempt will be made to correlate the recovered archaeological materials with the results of the analytical samples (e.g., radiocarbon dates) and with excavated samples from sites in similar contexts (e.g., the Boylston Street Fishweir site), if the results of those excavations are available. All cultural materials recovered will be curated in the archaeological laboratory at Boston University.

Report Preparation and Recommendations

The results of the archaeological monitoring and test excavations will be summarized in a final report describing the project, background study, fieldwork, and analysis. The summary report will present a discussion of the results of the archaeological investigations, including a description of the cultural resources recovered. The report will be illustrated with plans of archaeological testing, representative soil profiles, and areas recommended for further archaeological testing, if warranted. A complete inventory of all recovered archaeological materials will be presented in an appendix. The report will include a specific evaluation of the potential archaeological significance of any discovered cultural resources and recommendations to assist project planners with future management decisions concerning cultural resources on the site.

Schedule

Excavations for the underground parking garage are expected to require about four months during which time an OPA staff archaeologist will be on site at all times that construction activities have the potential to impact undisturbe marine deposits. If cultural materials are identified, laboratory analysis will require another two weeks; if radiocarbon samples are obtained, a minimum of 30 days is required for their analysis. A draft final report will be submitted within eight weeks of completion of the archaeological monitoring for project.

Budget Estimate

A budget estimate for conducting the archaeological monitoring excavation for the underground parking garage is presented in the accompanying tables.

Jones, Donald G., with Nancy S. Seasholes
1993 Archaeological Reconnaissance Survey of Boston University's Proposed School of Management Building in Boston, Massachusetts. Office of Public Archaeology (Boston University) Report of Investigations No. 123. On file at Massachusetts Historical Commission, Boston.

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InterOffice Memo

To: Bob Donahue, Jamie Fay, Chris Goode, Mark Haley, Ed King, Paul Rinaldi, William Smith, Steve Williams

From: Rayna Rubin

Date: March 30, 1994

Subject: BU-SMG - Massachusetts Historical Commission Meeting - March 10, 1994

Attendance:

Boston University - Ed King, Peter Cusato, Bob Donahue, Chris Goode, Steve Williams
Boston University Consultants - Mark Haley, Haley & Aldrich; William Smith, Cannon; Don Jones, Office of Public Archaeology; Jamie Fay and Rayna Rubin, Fort Point Assoc.
Secretary of State's Office - James Igo
Massachusetts Historical Commission - Judith McDonough, Allen Johnson
National Trust for Historic Preservation - Claudia Wu
Boston Preservation Alliance - Antonia Pollack
Society for the Preservation of New England Antiquities - Brian Pfeiffer

A meeting was held March 10, 1994 at the Massachusetts Historical Commission (MHC) to discuss the Memorandum of Agreement (MOA) regarding the proposed Boston University School of Management at 595 Commonwealth Avenue (the Project).

J. McDonough opened the meeting with introductions of attendees and a brief explanation of the purpose of the meeting to discuss how to move forward with the MOA for the Project.

Mark Haley of Haley & Aldrich presented the existing conditions and the measures for groundwater level monitoring and protection planned.

The existing conditions are typical of Back Bay in Boston. There are three subsurface levels before reaching the top of clay. The Charles River is at an elevation of approximately 8 feet (7 feet in the winter). There is approximately 1 - 2 feet gradient of groundwater from the site to the River. Building piles in the area are at an elevation of approximately 5 feet. Therefore, the groundwater level would have to drop 3 to 5 feet to expose the top of the piles of historic buildings.

The permanent foundation system for the Project involves a cast-in-place system with a rubber membrane lining which will not allow any seepage after the building is completed. No pumping will be required after the building is completed as in some buildings. The foundation system essentially replaces the excavated soils with the building so the subsurface clay doesn't

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The permanent foundation system for the Project involves a cast-in-place system with a rubber membrane lining which will not allow any seepage after the building is completed. No pumping will be required after the building is completed as in some buildings. The foundation system essentially replaces the excavated soils with the building so the subsurface clay doesn't recognize the change in the subsurface condition. This way no settlement occurs as a result of the building.

The excavation technique essentially involves installation of an impermeable wall. The wall is installed by auguring down to the clay level and pumping in cement which is mixed with the soil. "H" beams are set in to provide added stiffness. The soil is excavated down in levels approximately 10 feet deep and tiebacks are installed. When the excavation is complete, the foundation is poured. Excavation is expected to take approximately 8 to 9 months, 4 to 5 of which will involve dewatering activities.

If a foundation of this type were not used, the building would sit on piles which would require impact pile-driving. This would raise concerns for potential impacts on adjacent buildings.

Monitoring will begin prior to the start of construction. Nine observation wells will be installed: 5 along Bay State Road and 4 surrounding the construction site. Readings prior to construction will be taken for base information. There will be weekly monitoring during construction with reports submitted monthly to MHC. If significant activity is observed, monitoring can be adjusted accordingly.

If water levels are observed to be lowered, leaks in the support wall would be identified and sealed. If lowered water levels persist, water will be pumped into the fill soils. Construction specifications state that if there is a drop of 2 - 3 feet is observed for over 30 days, there will be recharging to an elevation of 6 feet. It was noted that the River provides natural recharge of the area and would respond in a very short time to lowered groundwater levels.

The building reference points will also be used to monitor building and site settlement. Monitoring will also include an inspection of adjacent building exteriors and of facades of buildings across Bay State Road. If appropriate, crack monitoring will be included in the building monitoring activities. It was noted that the Howard Johnson's, the BU dormitory, and a few buildings which back onto the alley were the most susceptible to any movement. Buildings which are more than twice the distance of excavation depth (approximately 80 feet away from the site) are unlikely to be affected by excavation activities. The buildings on the north side of Bay State Road are three to four times the distance of excavation depth. Non-University properties will be included in pre-construction inspections with consent of the owner. (They have not yet been approached.)

If significant building movement is observed construction methodologies will be modified accordingly. There will be no drilling under pile supported buildings in the historic district for tie-back installation.

It was asked what would the University do if damage does occur to buildings. As the responsible party, the University will assess the damage in the context of pre-construction conditions, identify what action is needed to repair the damage, and then decide on how to conduct the repair.

MHC suggested that the monitoring program presented at this meeting be included in the Final Environmental Impact Report (FEIR) for the Project. It was also suggested that it be included in the MOA.

Other mitigation measures for the Project was discussed. It was noted by the University that the size of the building was already reduced and could not be further reduced. There were no other practical development sites on campus for this program as demonstrated in the alternative site analysis in the DEIR. The University is committed not to expand development off campus and therefore needs to maximize its use of developable land. Furthermore, reuse of existing space is not plausible for the functions proposed for the Project.

Concern was expressed by SPNEA that engineering techniques were not fool-proof and that a smaller building would create smaller potential for geotechnical impacts. It was explained that even a smaller building of six or seven stories would require major excavation of approximately 30 feet. The depth of excavation would only be reduced by 10 feet and it would still be well below the groundwater level and require dewatering during construction.

It was further explained that the negative impacts to the Trinity Church associated with the John Hancock building were not applicable to this project because an entirely different excavation system was used and in general the building was not engineered as well as the Project.

It was explained that even in the worst case scenario, where piles are exposed, damage does not occur for months and even years in some cases. Typically, a building only requires 1/2 the pile to support the building and piles typically will have 1/8 to 1/4 inch of decay. Furthermore, the wet soils around the piles serve to protect them.

Members of the preservation groups expressed satisfaction with the monitoring program but still felt the Project building was too big in relation to the historic district.

J. McDonough summarized the situation: The Project building was larger than some would like. The University is providing the best protective measures during construction (more than with the Central Artery/Tunnel in many instances). Archaeological monitoring is recognized as part of the process yet should be included in the MOA. Protective monitoring as described at the meeting should be included in the MOA. Other mitigation measures should also be included.

Mitigation measures discussed included interpretive signs on historic buildings, more aggressive rehabilitation program of historic buildings in the historic district, and added landscaping screening along the open space next the dormitory on Bay State Road.

MHC expressed satisfaction with the mitigation measures discussed and suggested that the next step would be for the University to submit a draft MOA to MHC prior to the FEIR filing. The MOA would not be finalized until after the FEIR process to insure consistency. It was also noted that the archaeological monitoring permit application would be ready for filing within a week.

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